

# THE ARCHITECT & BUILDING NEWS

2 DECEMBER 1954 · VOL. 206 · NO. 23 · ONE SHILLING WEEKLY

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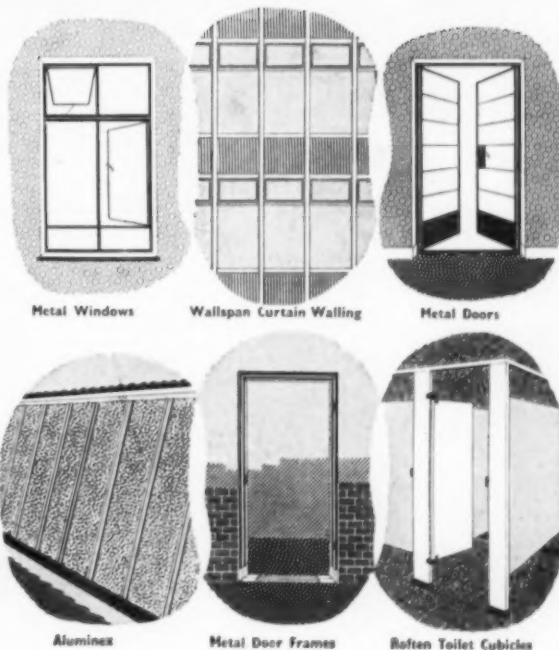
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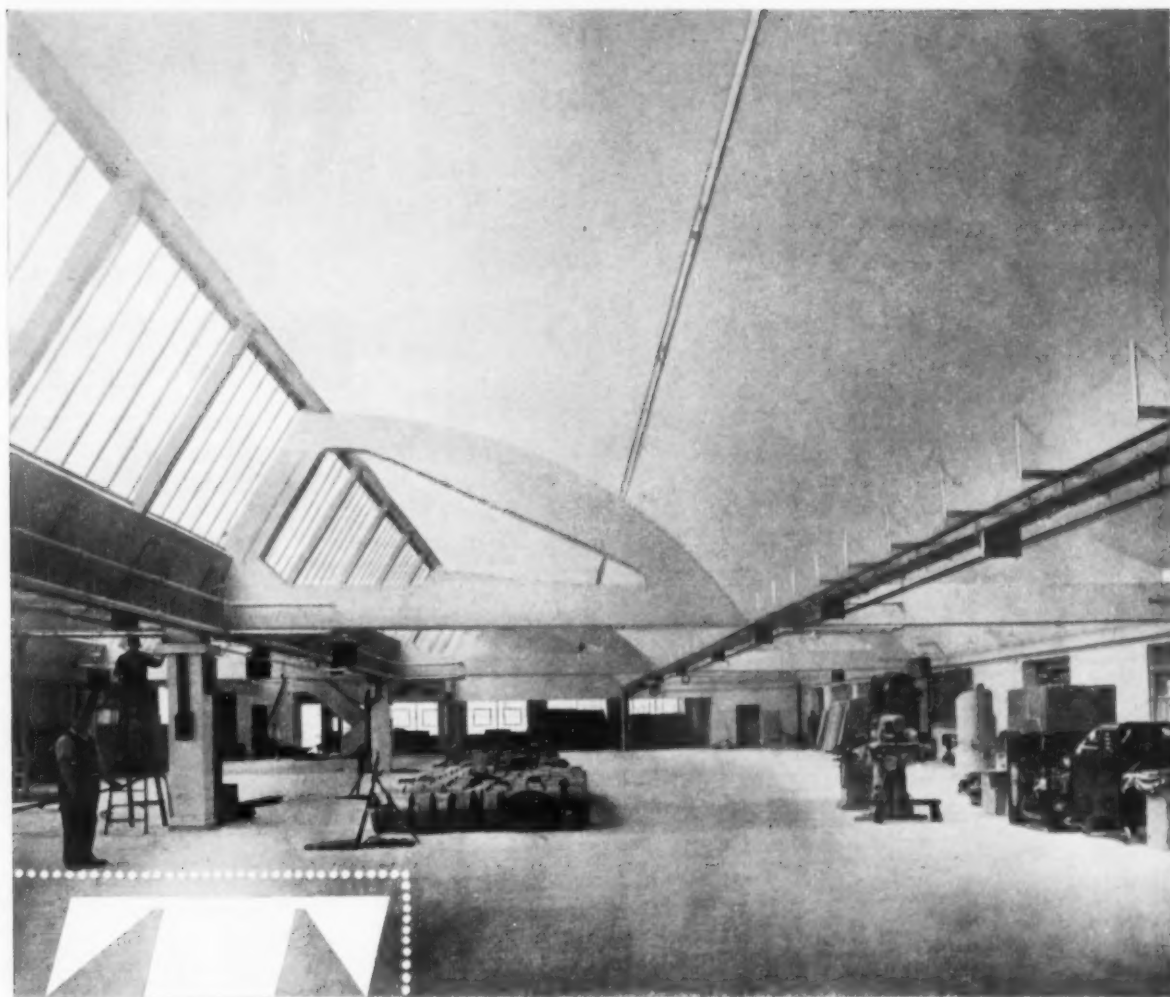
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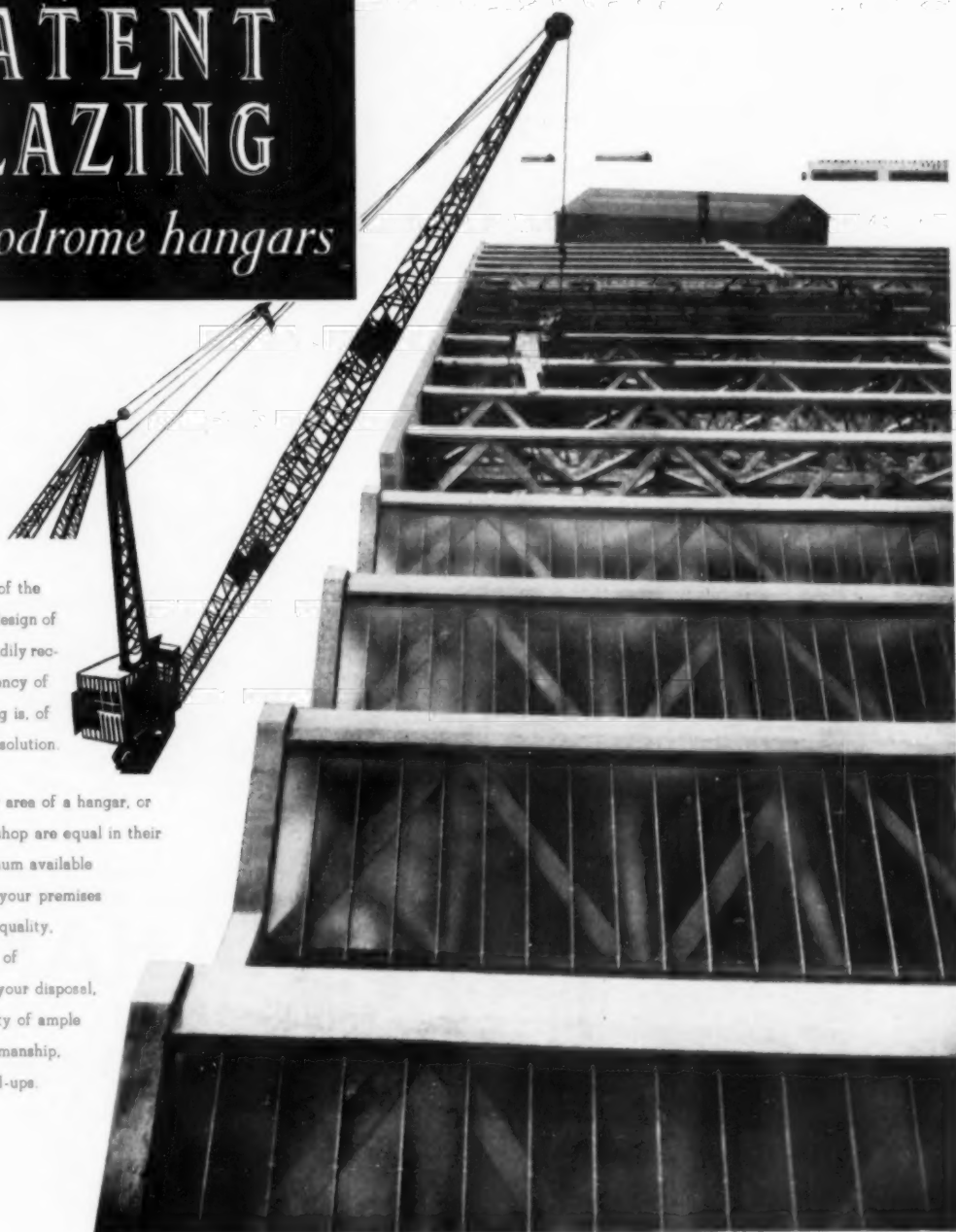
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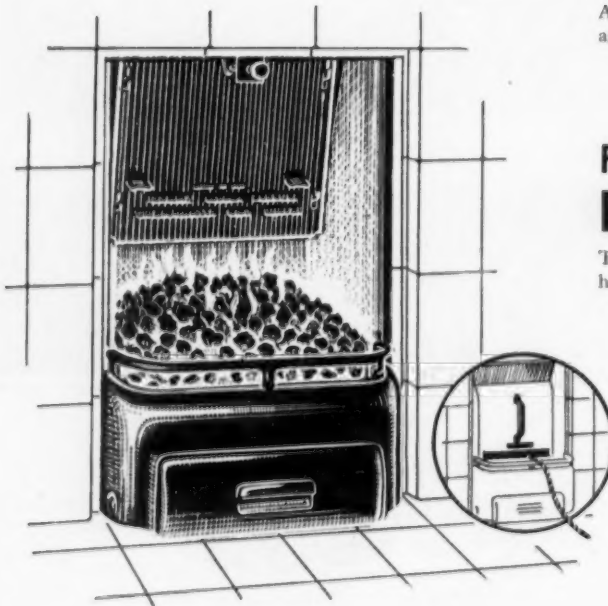
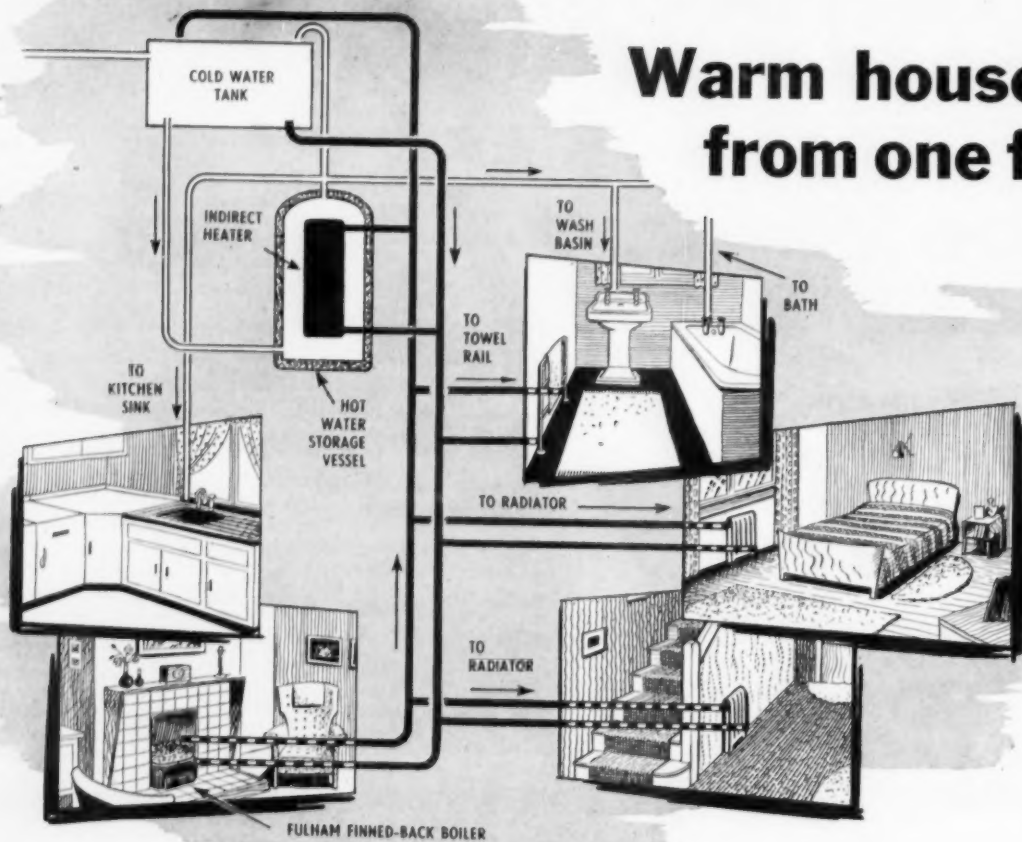
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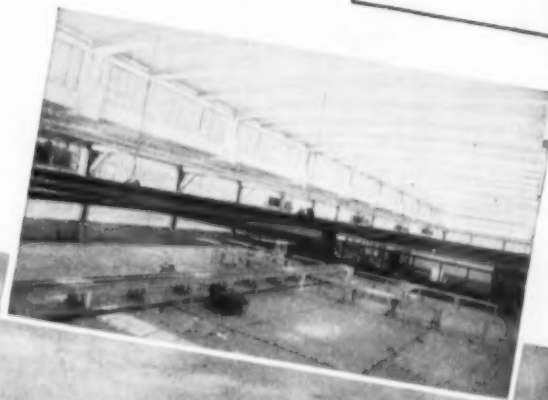


FROM THE SNOWCEM FILE:—

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**Inside  
and  
Outside**



Architects: Brighton Corporation Architects Dept. Contractors: Kirk & Kirk Ltd., London, S.W.15.

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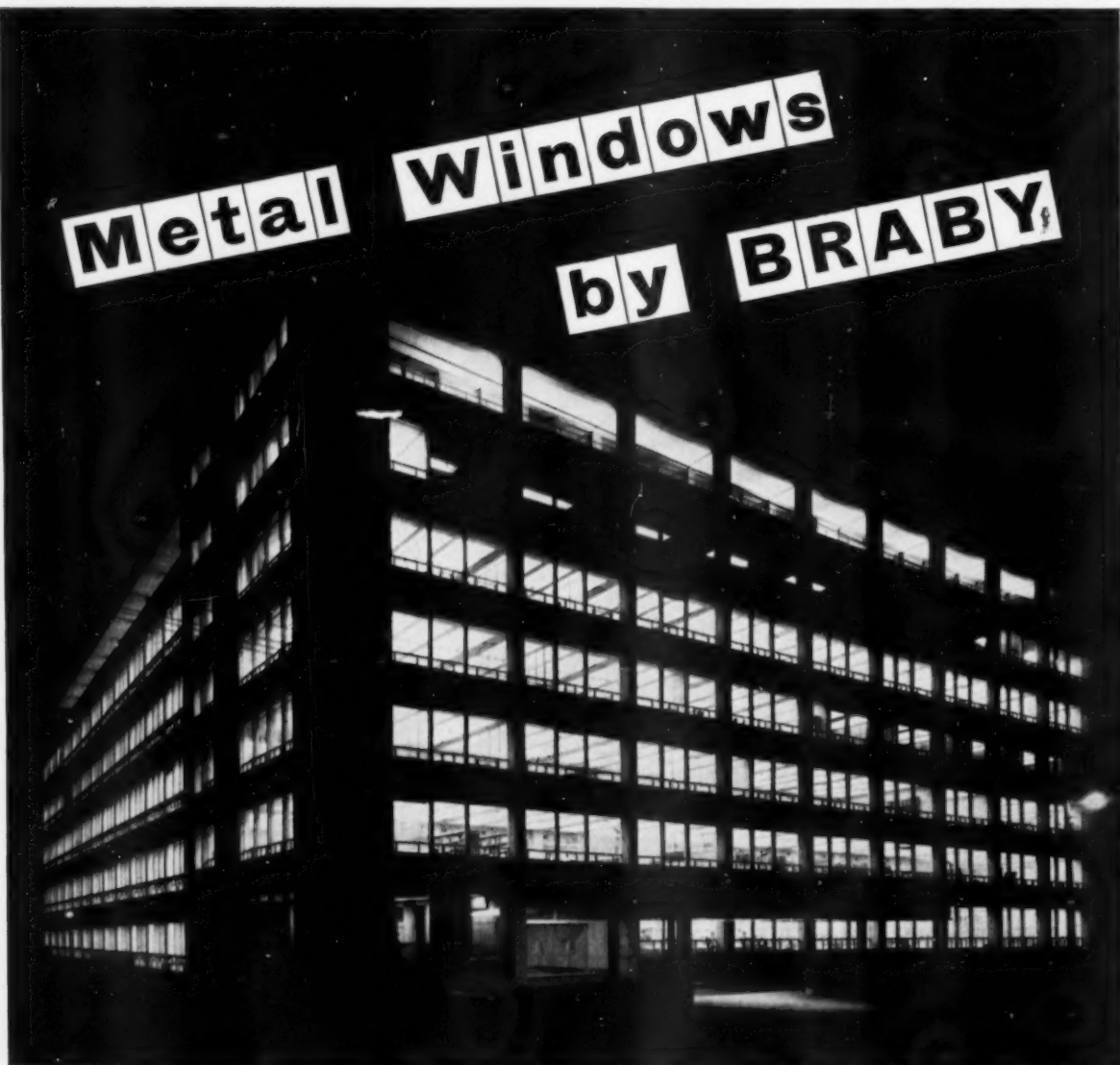
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*Photograph by courtesy of The General Electric Co. Ltd.*

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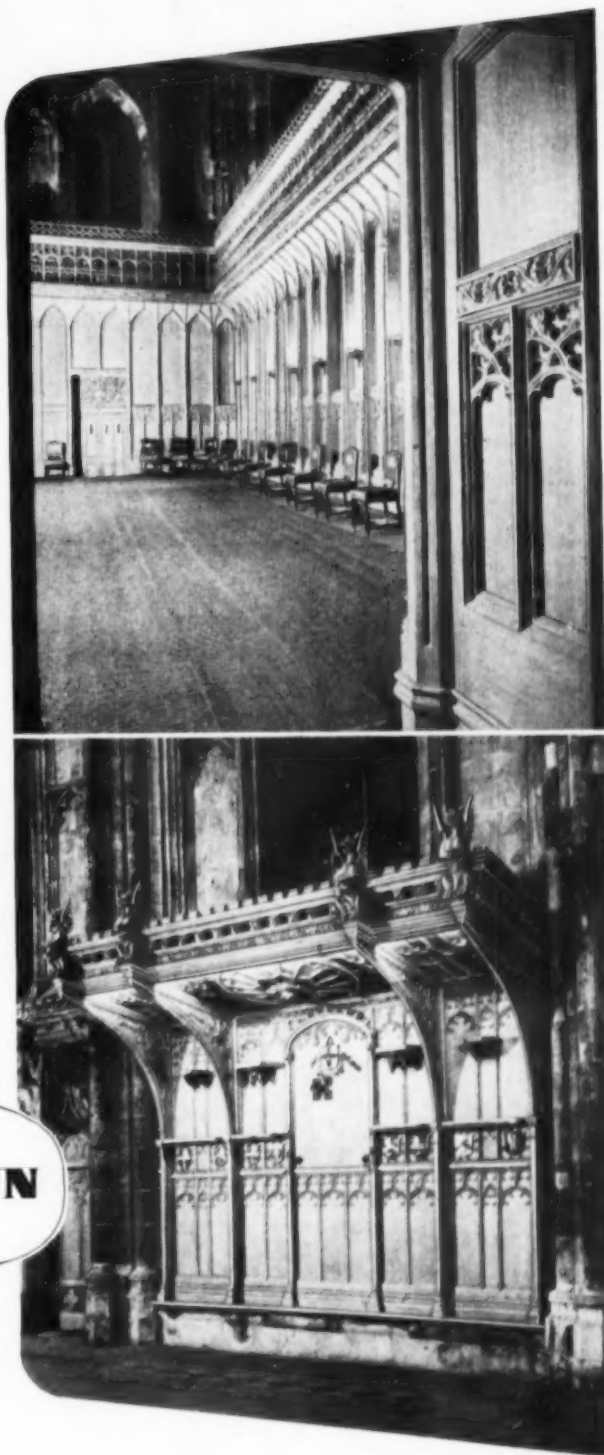
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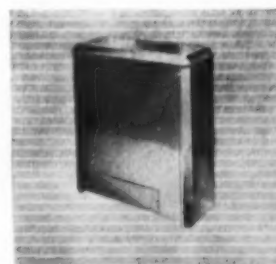


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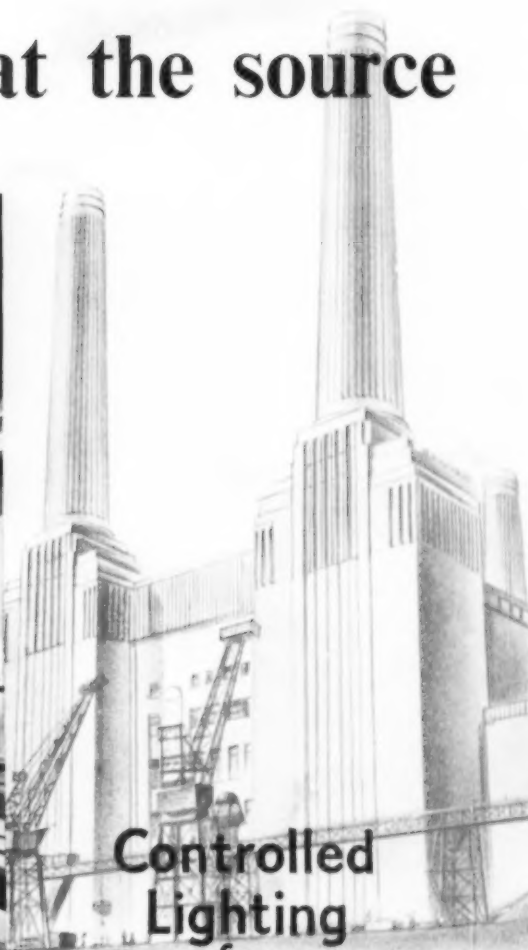
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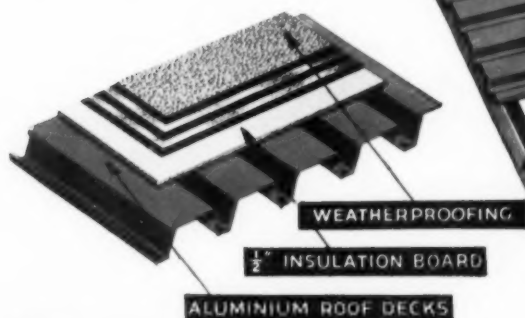
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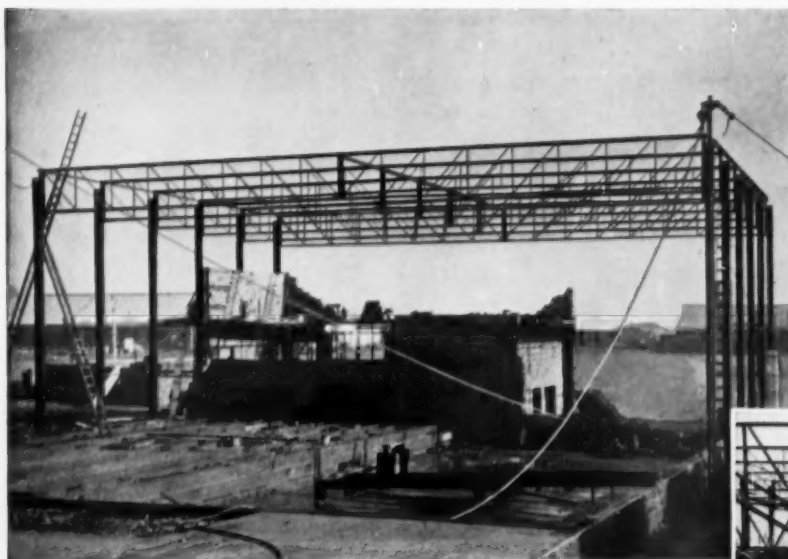
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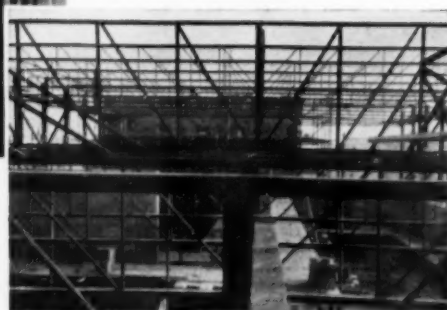
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# THE ARCHITECT & BUILDING NEWS

2 December 1954

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## THE VIEWS OF TEACHERS

**A** LARGE and lavishly equipped new school serves as a showpiece, and will be proudly exhibited as illustrating the local Council's enthusiasm for the cause of education. Political parties may also try to make capital out of the part each has played in bringing it into existence. Photographs appear in the press, together with glowingly descriptive articles suggesting that never before have such superb schools been built, nor has any generation of scholars been so fortunately endowed. And what of the teachers?"

This quotation is taken from a pamphlet "Schools and School Buildings—the Views of Teachers."\*

Since the school building programme for 1955-56 of Birmingham alone is likely to involve an expenditure of £2½m, the views of those who have to work in schools should be widely canvassed and made known while there is time to consider them.

In the pamphlet mentioned, the names of only fifteen teachers are given as having expressed opinions. These are far too few to be a sound foundation for generalizations, but a sample of their criticisms and observation will be given, since many other teachers will probably agree with some of them.

The Combined English Universities Conservative Association which publishes the pamphlet does not lay responsibility for the new schools on the teachers' own organization, which, knowing the vast programme in preparation, was presumably at liberty to set up a committee to give its views and preferences to the Ministry of Education. Nowhere in the pamphlet is it stated that the Ministry's architects have in their own bulletins relied heavily on the advice of the teaching profession—or so it is generally understood.

Science masters and mistresses should have been able to muster from their ranks a committee capable of defining with considerable precision the heat-

ing, lighting and ventilation desirable in schools.

The art masters and mistresses again could have made their views known through representatives, and so on, until the architect's programme for schools did actually represent the clients' needs. What then are the criticisms of those whose views are given in the pamphlet?

"Whatever views we may hold on the design of schools, we are entitled to expect a building to be properly heated" is one, and the author of the pamphlet says that when teachers attempt to diagnose the causes of chilliness they usually blame the architect, not the heating engineer.

Large windows are regarded as "cold radiators." "Caustic comments have flowed from the mouths and pens of those who have taught in schools with open corridors . . . why was it ever imagined that this type of design could be generally applied with success in a climate as inclement as ours." (This is a case where the teachers themselves could have informed the Ministry before any post-war schools were built.)

Compactness in plan is favoured as against "huge, sprawling buildings" where "the waste of time and sense of frustration are appalling." "Control (of children) is much easier when the distances are short."

The teachers place great emphasis on the need for them to be able to hold the children's attention while teaching. "The minimizing of classroom distractions is therefore the most important contribution that the designer can make towards the suitability of a building for educational purposes." If this is generally agreed by teachers, schools architects should take note. Large glazed areas and bad sound-insulation are instanced as factors telling against concentration.

"The general opinion seems to be that a wall of glass on one side of a room acts as a deterrent to concentration for it causes the outside world to impinge too prominently on the pupils within."

Perhaps many architects look back on their school-

\* A Faculty Pamphlet. Published by the Combined English Universities Conservative Association. Price 6d.

days with a feeling that it was a relief to be able to turn a deaf ear to the master and look out of the window, even if it was small, leaded, and ivy-covered. To-day, when teaching is possibly less boring, this point about distraction is important.

Other points made in the pamphlet are the need for the following: better staff accommodation; a medical room, however small; built-in classroom cupboards, if possible in the form of partitions to exclude sound from the next-door classroom; darker colours (than pastel) for the lower parts of walls to not show dirt; hand rails on *both* sides of every staircase; a cosy foyer in which to welcome visitors and parents; floors that have "some kind of non-skid surface"; one teacher wanted "a grass patch to be available for free play in addition to the grounds for organized sport."

The pamphlet quotes with approval one instance in the Midlands where arrangements were made for certain specialist teachers to meet the architect in order to discuss specific problems, as if it were quite rare. Surely it is not so unusual as all that!

For instance there was the symposium on Secondary Modern Schools held at the A.A. in November 1952 at which teachers and educationists gave papers.

However, with a vast programme of school building yet to come, it is not too late for the teachers to tell the M.o.E. architects what they want and also those features that they wish eliminated. The best architects pride themselves in giving form and expression to the clients' needs. There are few clients as interesting as teachers and children, let us hear their views and criticisms by all means, but make sure that they are really representative.

## EVENTS AND COMMENTS

### AIR POLLUTION REPORT

Sir Hugh Beaver's committee has cleared the air with its report. Well done, Sirs! It is estimated that about seven million households in the "black" areas will require new solid fuel appliances in place of the existing grates. Apparently the production capacity of the industry is considered adequate for this demand, which rather surprised me. I thought such a programme would put quite a strain on both production and fitting sides.

If we can look forward to a gradually purified atmosphere it will raise morale everywhere. The extent of pollution that we have gradually got accustomed to was brought home when I read that the Eckener zeppelin expedition to the Arctic in 1931 made tests with a dust-counter which registered over the Arctic Circle 200-300 particles of dust in a volume that would normally contain 300,000-400,000 particles in the air over industrial towns.

### MR. SHEPPARD FIDLER'S LECTURE

I did not hear Mr. Sheppard Fidler's lecture at the Birmingham Art Gallery last Thursday, but from the report in the *Birmingham Post* I thought what he had to say was very much to the point. He said he believed that a real live architecture is flourishing and growing, combining science and art in a new conception of building in the service of man . . . "but can we say that many of our modern architects have succeeded in creating buildings which evoke an emotional response in us as we look at them? Undoubtedly some have succeeded, but we still have far to travel before architects in general design contemporary buildings which will be accepted and appreciated by the great mass of the people." Honest self-criticism will, I am sure, win the respect of the public in the meantime. Anyway, we are not likely to swing away in the direction of Soviet Baroque as a way of pleasing the masses. The Russian comic paper *Krokodil* had a cartoon in June of this year showing a man trapped in a veritable forest of classical columns, thus attacking this school of design.

Let us not try too hard to please the masses. If we do

the job honestly as Mr. Peter Shephard advocated at the A.A., perhaps the expression of buildings will mellow some day.

### P.F.A. EXHIBITION

The British Electricity Authority arranged a most interesting little exhibition at their premises in Winsley Street (on the west side of Messrs. Waring and Gillows). It ends this week, unless the Building Centre or some other body persuade B.E.A. to let them take it over for a further period. The B.E.A. would like to see some brickmakers set up plant close to the power stations which produce the fly ash, so that it can be inducted hydraulically or by suction pipes direct to the brickworks.

P.F. ash is available to all manufacturers of bricks and lightweight concrete blocks who care to carry it away, and the exhibition includes a large number of products of this kind.

Builders and architects have for some years been interested in similar blocks abroad, such as the Swedish Ytong blocks made of alum-shale and Siporex. One of the exhibits is a block of Durox, in which fly ash has been used instead of alum-shale. In weight and quality it is equal to the Ytong block and we may see rapid progress in this country along similar lines.

### THE LATEST WALLPAPERS

At an exhibition of the latest wallpapers at the British Colour Council premises my feeling increased that there are too many designs. Since the war there have been a number of exciting new wallpapers and I went to the exhibition in high hopes of seeing even better ones. I must confess to disappointment. My impression was that there had been a general improvement in colour and subtlety of popular patterns, but saw none that measured up to the highest highbrow standards. What caught my eye was our old friend Lincrusta in strips simulating silver grey wood with green vertical division lines.

A number of washable papers, coated with a plastic emulsion giving a matt eggshell finish, have been added to the range.



The Wall Paper Manufacturers are frequently asked why there aren't more washable papers as in America. Their answer is that the heavily embossed wallpapers are still the most popular and are not suitable for treatment, and not all colours of smooth patterns such as the contemporary designs lend themselves for coating either. If all papers were made washable, the range of available colours and designs would be much smaller. However, I understand that, wherever possible, washable wallpapers will be produced.

### BALTIMORE CATHEDRAL

Looking through *Architectural Forum* for October, I noticed a paragraph and news picture of a proposed new cathedral in Baltimore to cost \$8½m and be completed in 1959. The style is described as "modern Gothic," and the walls are to be self-supporting limestone masonry "like those of centuries-old European cathedrals." Limestone arches will support the roof and windows will be double-glazed to protect the stained glass. The illustration of the cathedral includes a chapel which looks like a very close crib of Mr. Basil Spence's Chapel of Unity for Coventry.

### TO THINE OWN SELF BE TRUE

Can it be true that Essex County Council refused permission to a woman who wished to remove the plaster from the exterior of her sixteenth-century cottage in order to expose the timber frame, on the grounds that the effect if she did so would be to make the cottage look pseudo-Tudor?

This story appeared in the *News-Chronicle* and was sent by a reader of the *New Statesman* for inclusion in that paper's "This England" column.

### B. E. M.

Congratulations to Mr. Wilfred Bone who has been awarded a British Empire Medal for outstanding ability and leadership in getting houses built quicker in the Norwich area. I understand that Mr. Bone goes in for site organization in careful detail and that bonuses and putting the men in the picture help considerably. How about getting Mr. Bone to appear on TV and tell the world at large how he does it? I hope the houses are good ones though.

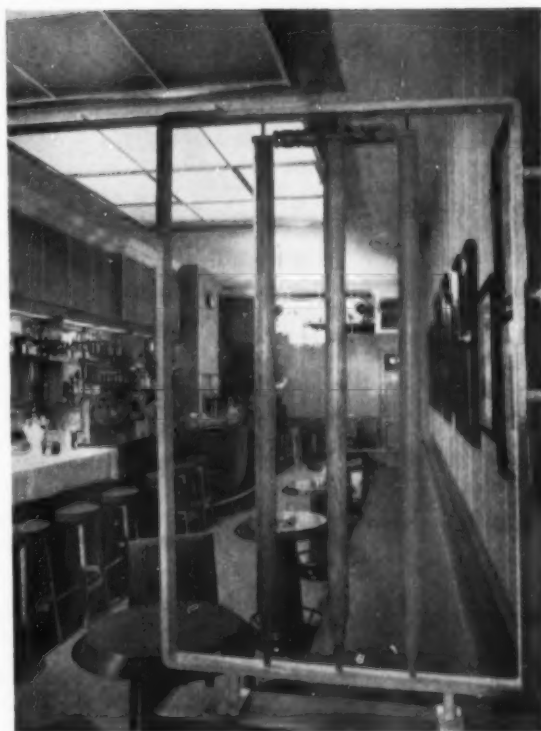
### ITALIAN EXHIBITION

The exhibition of Italian furniture, lighting and pottery at Messrs. Heals' is very gay and amusing. I particularly admired the elegant chairs in beech with rush seats so obviously inspired by English examples.

The Italians have been very daring since the war and some of the furniture shown would never have got off the drawing board over here, being regarded as amusing but, well. . . . It is nice, however, that someone is prepared to have a go. The exhibition, although quite small, is well worth a visit.

### JOURNEY TO GLASGOW

If you can avoid travelling north at this time of year do so by all means. Visiting Glasgow last week, the journey up overnight by rail took just over 12 hours and the return by air on Friday 6½ hours, including waits at town and airport terminals. With 60 m.p.h. gusts on the airfield at London Airport, I thought our pilot landed his aircraft exceptionally well. But I give the manage-



The saloon bar of "The Yorker," a Whitbread house in Piccadilly, has recently received a new treatment designed and arranged by Richard Lonsdale-Hands Associates. Side walls have been panelled with a pale green plastic and the end walls with a wooden veneer. Banquette seating upholstered in a dark red leatherette runs the length of the bar, which displays a series of pictures illustrating the history of cricket, further emphasized by a silhouette of top-hatted players on a village green, giant stumps and a "batting crease" let into the green lino of the entrance lobby.

ment no marks for keeping everyone waiting for 20 minutes while control locks were brought out to fix the aircraft, ailerons, rudder and elevators before taxiing in. Even in bumpy weather air travel, when you cannot see out, is extremely dull. The bus-like shape of the cabin and an uninterrupted view of passengers' necks could be relieved by lively use of colour instead of the one tone of grey-green with which these aircraft (DC3s) are usually painted.

London's West End looks clean, neat and elegant after the slippery granite setts and tram-ridden centre of Glasgow.

Those trams! What a problem they make for the traffic and a death trap for the unwary pedestrian whom the slow-moving stream may tempt to jay walk. Buchanan Street has some fine shops, as everyone who has been there knows. The latest addition is a new Jaeger's, designed by Dennis Lennon. The simple façade, which is in glass and black and white marble, is backed up by a fine circular staircase mainly in metal tube painted black, scarlet and white with some polished brass in the right places. There are some amusing lamp shades and showroom fittings. The whole decoration is restrained in colour in order to show off the bright colours of the woollens.

### ALEXANDRIA HOSPITAL

Out of town, Alexandria Hospital, Dunbartonshire, on the way to Loch Lomond sits snugly in a valley; securely sited, as it should be, as an emergency hospital for Glasgow. It is not yet finished but promises to be a fine hospital. John Gleave, of Keppie Henderson & Gleave, is the architect. He told me work still continues on the Columbus Memorial, the competition for which he won in 1928.

### RENFREW TERMINAL BUILDING

The ultimate goal of this visit was to attend the opening ceremony of Renfrew Airport's new terminal building designed by W. H. Kininmonth, of Rowand Anderson, Kininmonth and Paul, of Edinburgh. Edinburgh? Yes, Edinburgh. This is the first permanent terminal building to be completed by the Ministry since the end of the war, and cost approximately £200,000. It replaces the existing control tower and offices and the present passenger facilities which up to now have been housed in temporary huts inside a hangar built in the first world war when the place was first developed as an aerodrome for the Royal Flying Corps.

The new terminal is a strange-looking building, very dramatic from some points of view and pleasant enough

inside. When borings were taken on the site the subsoil was found to be waterlogged. The skeletal structure was for that reason adopted and its reinforced concrete load-bearing members rest on pads which take up soil movement, "much on the principle found in nature in the case of the water spider and similar insects." I quote from the Air Ministry hand-out.

The building was opened by the new Minister of Transport and Civil Aviation, John Boyd-Carpenter, among a distinguished gathering including the Lord Provost of Glasgow, Lord Lieutenant of the County, members of the Scottish nobility, Scottish Aerodromes Board and Air Ministry officials.

The Duke of Hamilton was there. He is a former C.O. of No. 602 (City of Glasgow) Squadron, Auxiliary Air Force, who trained at Renfrew up to 1935 when it was a Municipal Airport owned by Renfrew Corporation. The Press were cordially invited to the opening and I wondered how those from afar and less fortunate than I, who was with friends, managed. Written matter there was; but no food, no drink (except from the passengers' bar) and no transport. The opening was scheduled for 12 noon but took place nearer 12.45 as the Minister's plane was late. Renfrew-Glasgow is no walking distance on an empty stomach.

A. N. OTHER

## NEWS OF THE WEEK

### Report on New Barbican Scheme

When the New Barbican scheme of redevelopment comes before the City of London Court of Common Council to-day it will be pointed out that some of the proposed buildings would be lacking in amenities and daylight.

Briefly, the New Barbican Committee proposal is to excavate to a depth of 60ft below ground level over a 40-acre site, with four storeys of warehouses and factories below ground; and above the surface offices and flats. The factories and warehouses would be artificially lighted and ventilated and would have a self-contained road system with spiral ramps.

The Improvements and Town Planning Committee in their report to the Council say that in addition to the lack of amenities and daylight the Corporation would be required to invest a very large sum of public money in the wholesale acquisition of the area, which is bounded on the north by Barbican, on the east by Moorfields, on the west by Aldersgate Street and the south by Silver Street, Guildhall Precinct and Basinghall Avenue.

It would be prudent, says the report, for evidence to be produced that capital would be available and that there would be sufficient demand for the accommodation.

The report also refers to other proposals put forward for comprehensive redevelopment of parts of the area, and goes on "in our opinion these schemes, which are more conventional

in character offer a more realistic opportunity for securing the redevelopment of the area north of route 11.

"We feel it would be neither reasonable nor proper for the consideration of these alternative proposals to be delayed—for what may be a considerable period—until the New Barbican scheme has reached a stage when planning permission could be granted on the footing that a lease of the land would be available from the Corporation."

Observations by the City Planning Officer on the New Barbican Committee's scheme, which are contained in the report, include:

"The introduction of such a large industrial user would be contrary to the provisions of the development plan now before the Minister, in which the area is zoned for commerce, not for industry.

"No attempt has been made to comply with present planning standards.

"In particular no natural light is provided to the factory space, the block width of offices is upwards of 70ft, and, if the figures given verbally are correct (namely, four million square feet of factories and warehouses, three million square feet of offices and 1,000 residential units), the density of development is excessive.

"Acceptance of the proposals would necessitate the revocation of a number of planning permissions already granted, and the non-performance of an agreement to grant a lease of the site north of Moorgate station.

"There is no evidence that con-

sideration has been given to the economic aspect, although a figure of £55,000,000 has been mentioned as the approximate cost of carrying out the prospect: nor has any evidence as yet been given of any demand for the factory and warehouse space proposed."

The report points out that the formal planning application based on the sketch scheme, was not accompanied by an Industrial Development Certificate, and is, "strictly speaking, of no effect."

The Committee understood, however, that application had been made by the New Barbican Committee to the Board of Trade for the grant of a certificate.

### Kitchen Competition

On Thursday, November 25, at the E.L.M.A. Lighting Service Bureau, The Dowager Lady Swaythling, O.B.E., presented the prizes to the winners of a kitchen planning competition, which had been organized by the Electrical Association for Women for its members. Mrs. Harvey was the winner of the first prize, which was a voucher for £25 to be spent on electrical equipment.

After the prize-giving, Mr. A. L. Osborne, F.R.I.B.A.—who was one of the judges—gave a talk on kitchen planning, with special reference to the points revealed in the competition. This talk was followed by a short film, on the same subject, which had been arranged by the British Electrical Development Association.

### Single Stack Drainage

The exhibition on Single Stack Drainage for Multi-storey Flats at the Royal Sanitary Institute, has proved so successful, drawing 4,000 visitors in its first two weeks, that it has been decided to keep the four-storey full-scale model on view in the Institute's Museum of Hygiene after the date announced for the closing of the exhibition, Wednesday, December 1.

The installation will be available for inspection (from 10 a.m.-5 p.m. on Mondays to Fridays, 10 a.m.-12 noon on Saturdays) until January 4, 1955, and then, to avoid disappointing those unable to visit the exhibition before December 1, the talks and demonstrations will again be given by experts from the Building Research Station on January 5, 6 and 7, from 10.30 a.m. to 6.30 p.m.

Parties of 10 or more wishing to see these additional demonstrations are advised to notify the Secretary of the Institute, 90, Buckingham Palace Road, London, S.W.1, of the date and time of their intended visit and the number in the party.

### In Parliament

#### Byelaw Points

Sir Alfred Bossom addressed a series of questions to the Minister of Housing and Local Government on Nov. 24 relating to the new model byelaws.

He wanted the byelaws reviewed, with the object of cutting out existing anomalies, and of discovering where economies in construction were possible without prejudicing the strength of the buildings and while taking advantage of the new regulations. Mr. Sandys said the latest byelaws were drawn up with the advice of an authoritative and fully representative committee, and as they were issued as recently as 1952 it was rather early to consider amending them. If, however, Sir Alfred would care to send his proposals he would see that they were taken into account when the next review was undertaken.

Sir Alfred asked if the Minister was aware that approval for many buildings needed in certain cities was being withheld by the local authorities who had based their regulations on the new model byelaws, although buildings designed with similar construction were being put up in other cities where the model byelaws had not been adopted, and if he would bring this anomaly to an end. Mr. Sandys said he would be grateful if Sir Alfred would be good enough to send him particulars of the cases he had in mind.

Sir Alfred Bossom also asked why, under the new model byelaws, all reinforced concrete columns used in buildings had to be 10 inches square or larger, no matter whether this strength of material was necessary or not; and if the Minister would have this reconsidered so that smaller columns could be used where appropriate. Mr. Sandys replied that the model byelaws

did not contain such a requirement. It would seem that Sir Alfred had in mind the requirements relating to fire resistance, which were more exacting.

#### Parking Bays

Sir Alfred Bossom asked the Minister of Housing and Local Government if he would arrange for his officials to consult with those of other departments concerned and with local authorities to consider the desirability of requiring that in large buildings in the future whose users would require parking space in the immediate vicinity of that building, provision should be made for this in an upper basement in the original drawings submitted for planning approval. Mr. Sandys replied that it was already the practice of planning authorities to require parking space to be provided in appropriate cases. (Nov. 25.)

#### Floating Floors

Mr. Chapman asked the Parliamentary Secretary to the Ministry of Works if he would state the advice being given to the Birmingham City Council by the Building Research Station regarding the defects in the floating floors on Egghill Estate, Birmingham. Mr. Bevins replied that investigations on the spot by the Building Research Station showed that the sound insulation of these floors was much better than that of ordinary wood floors and as good as that given by any other floating timber floors available at the time the flats were built. These were necessarily inferior to concrete floors, which gave better insulation at greater cost. The floors examined at Birmingham were no more springy or uneven than other timber floating floors. Birmingham City Council had been advised of these findings. (Nov. 23.)

#### Temporary Extension

Mr. Sorensen asked the Minister of Housing and Local Government what was the further assumed life of prefabricated temporary dwellings after

their occupation for 10 years; what was the average cost of repairs and renovations for these structures; and what was their average all-in annual net cost to the community. Mr. Sandys stated that no particular length of life for prefabricated temporary houses had been assumed. The average annual cost would depend on how long these houses were retained. Figures for the average cost of repairs were not available. (Nov. 23.)

#### Cleaning the Windows

Mr. Will T. Paling asked the Minister of Housing and Local Government whether he would introduce regulations to provide that, in the construction of new buildings and, where possible, in existing buildings, provision should be made for the use by window cleaners of appropriate safety equipment. Mr. Sandys said he was afraid he had no power to make such regulations. (Nov. 23.)

#### Hotel Lighting

Lt.-Col. Bromley-Davenport asked the Minister of Housing and Local Government whether he was aware that, under the Control of Advertisement Regulations, advertisements consisting of red fluorescent tubing inside a hotel had been held to fall within the scope of the regulations; and whether, in view of the desirability of allowing reasonable freedom in this connection, he would consider introducing amending regulations at an early date. Mr. Sandys replied that, provided they were not visible from outside, there were no restrictions on signs displayed inside buildings. (Nov. 23.)

#### Bedroom Types

An analysis of houses and flats built for local authorities and new towns in the third quarters of 1952, 1953 and 1954, was supplied by Mr. Deedes, Parliamentary Secretary for Housing and Local Government, on Nov. 23, in reply to a question by Mr. A. Blenkinsop. The analysis is according to the number of bedrooms, and is —

		1 bedroom		2 bedrooms		3 bedrooms		More than 3 bedrooms	
		No.	% of total	No.	% of total	No.	% of total	No.	% of total
1952	Houses	1,620	3.1	17,108	32.5	32,787	62.4	1,055	2.0
	Flats...	2,968	24.2	7,656	62.6	1,552	12.7	62	0.5
		4,588	7.1	24,764	38.2	34,339	53.0	1,117	1.7
1953	Houses	1,160	3.2	10,424	28.5	24,350	66.5	661	1.8
	Flats...	2,636	25.1	5,885	56.1	1,873	17.9	98	0.9
		3,796	8.1	16,309	34.6	26,223	55.7	759	1.6
1954	Houses	1,216	4.3	7,928	27.8	18,769	65.9	586	2.0
	Flats...	2,850	27.1	5,988	56.9	1,643	15.6	41	0.4
		4,066	10.4	13,916	35.7	20,412	52.3	627	1.6



## APPOINTMENT

Mr. G. Vaughan Rees, A.M.T.P.I., has been appointed County Planning Officer, Flintshire. Mr. Vaughan Rees was formerly Deputy County Planning Officer.

## ANNOUNCEMENT

Arthur T. Beer, B.Arch., A.R.I.B.A., Chartered Architect, has commenced practice at 272, Christchurch Rd., Newport, Mon., and will be pleased to receive trade catalogues, literature and samples. Telephone: Newport 72316.

## COMING EVENTS

*The Institution of Sanitary Engineers*

December 2 at 6.30 p.m. Paper on "Biological Sewage Filtration and Vacuum Dewatering of Sludge—Experimental Work at Reading, 1949-1945," will be presented by D. H. Barraclough, F.I.San.E., M.Inst.S.P., M.R.San.I., at Caxton Hall, Westminster, S.W.1.

*The Architectural Association*

December 8 at 6.15. Illustrated talk on "Building in Singapore—an Historical Review in Tropical Architecture," by T. H. H. Hancock, at 34 Bedford Square, W.C.1.

*The Royal Institute of Chartered Surveyors*

December 6 at 5.30 p.m. Ordinary General Meeting. "The Landlord and Tenant Act, 1954," by W. E. A. Bull, F.R.I.C.S., at 12 Great George Street, Westminster, S.W.1.

*The Housing Centre Trust*

December 7 at 1.15 p.m. "Can a Community be Created," by H. P. Dow, Community Advisory Officer, Bristol Council of Social Service, at 13 Suffolk Street, S.W.1.

*Institution of Structural Engineers*

December 7. Structural and Building Engineering Division Meeting. Paper by Sergei Kadleigh on "The Social and Town Planning Significance of High Paddington," Professor A. L. Baker on "High Building Frames and Foundations," A. W. Kempton on "Foundations for High Buildings," and S. J. Chamberlain on "The Traffic and Parking Problems."

*Royal Institute of British Architects*

December 7 at 6 p.m. "Art History and Contemporary Art," by Basil Taylor, at 66 Portland Place, W.1.

*London Master Builders' Association*

December 8 at 1 p.m. General Meeting of Central Area No. 1. Resumption of the discussion which took place at the previous meeting on the London Working Rule Agreement and Mr. R. E. Stenning, M.A., the Association's Secretary, has agreed to attend. At Derry and Tom's Restaurant, Kensington High Street, W.8.

*The Reinforced Concrete Association*

December 8 at 6 p.m. Paper on "Load Factor Methods of Designing Reinforced Concrete," presented by F. G. Thomas, Ph.D., B.Sc., M.I.C.E., M.I.Struct.E., at 11 Upper Belgrave Street, S.W.1.

## Air Pollution Report

The Report of the Committee under the chairmanship of Sir Hugh Beaver, M.Inst.C.E., M.I.Chem.E., was published last week (H.M.S.O., price 3s 6d). The following is a summary of recommendations.

*Recommendations Entailing Legislation*

(1) Subject to certain exceptions the emission of dark smoke from any chimney should be prohibited by law.

(2) The use of efficient grit- and dust-arresting plant should be obligatory in new industrial installations which burn pulverized fuel, or solid fuel in any form at a maximum rate of 10 tons an hour or more. It should be the duty of the owner or occupier of premises on which any such installation, new or existing, is situated to take measurements of grit emission and to inform the local authority of the results if so required. In other industrial installations fired by solid fuel, all reasonably practicable steps should be taken to prevent the emission of grit and dust.

(3) In the case of certain industrial processes in which the prevention of dark smoke, grit or harmful gases presents special technical difficulties, responsibility for ensuring that the best practicable means of prevention are used at all times should be vested in the Alkali Inspectorate, and the provisions of the Alkali Acts should be extended accordingly.

(4) The provisions now in force under a number of local Acts for regulating the design of new industrial furnaces should be included in general legislation.

(5) The law for the control of smoke from railways, and of pollution from colliery spoilbanks, should be brought up to date and strengthened. Responsibility for enforcement should rest with the local authorities.

(6) Local authorities should have power under general legislation by means of Orders requiring confirmation by the appropriate Minister to establish (1) smokeless zones in which the emission of smoke from chimneys would be entirely prohibited; and (2) smoke control areas in which the use of bituminous coal for domestic purposes would be restricted.

(7) Financial assistance should be provided by local authorities and by the Exchequer towards the costs incurred by house owners in converting appliances in smokeless zones and smoke control areas.

(8) Domestic heating appliances installed in all new premises should be of approved types.

(9) The present purchase tax of 50 per cent on gas and electric room and water heaters should be removed.

(10) Except for the processes referred to in (3) above, responsibility for enforcing the law for the prevention of smoke and grit should be placed as a statutory duty on the local authorities.

(11) Local authorities should be required to submit annual reports on their progress in smoke abatement to the appropriate Minister.

(12) Penalties for smoke offences should be increased.

*Other Recommendations*

(1) The following documents should be prepared and issued by the British Standards Institution:—

(a) Codes of practice indicating the extent to which smoke can be reduced

with good practice and the means of securing such reductions.

(b) Standard specifications for smoke indicators, recorders and alarms.

(2) The British Standards Institution should also consider devising simpler standard methods of sampling flue gases to determine grit emissions.

(3) Stoking should be recognized as an operation requiring skill, and firemen should be properly trained and remunerated.

(4) The Government Loan Scheme for approval fuel-saving equipment in industry should be extended to include equipment installed for the purpose of reducing air pollution.

(5) Consideration should be given to allowing the whole of the capital cost of new plant and equipment installed to save fuel and to prevent smoke to be charged against revenue for tax purposes in the year in which the expenditure is incurred.

(6) The most efficient practicable methods of removing sulphur from flue gases should be adopted at all new power stations in or near populated areas.

(7) The factor of pollution should be taken into account when future schemes for the electrification of the railways are being considered and the programme of electrification should be accelerated and extended. The changeover from steam to diesel shunting locomotives should be accelerated.

(8) The present law for the control of pollution by motor vehicles should be more rigorously enforced.

(9) The prevention of domestic smoke will require the replacement of bituminous coal now used in domestic premises in the "black areas" by smokeless fuels, and also the provision of new appliances, fitted with easy means of ignition, in which such fuels can be burnt satisfactorily. This should be secured by the progressive extension of smokeless zones and smoke control areas as increased supplies of smokeless fuels are made available.

(10) The British Standards Institution should prepare specifications and methods of testing for coke for household use and for domestic solid fuel appliances.

(11) Clean air should be the declared national policy, and it should be recognized both by the Government and the Nationalized fuel industries as an essential element in fuel policy in the future.

(12) Local authorities should employ adequate smoke control staffs with the proper training and technical qualifications.

(13) Arrangements should be made to secure effective co-ordination as between local authorities in the black areas, and especially in Greater London.

(14) Development and research work on the many technical problems now outstanding should be undertaken or accelerated.

(15) A "Clean Air Council" should be established to co-ordinate and encourage research work and to review the progress in implementing any new legislation.

## A.B.T. Pocket Diary

The 1955 'Building Technicians' Pocket Diary is now available from the Association of Building Technicians, 5 Ashley Place, S.W.1.

It is good value at 5s 4d (including purchase tax and postage).

## CORRECTION

On page 627, issue November 18, the Architect's name was incorrectly spelt, it should have been J. T. Lewis, A.R.I.B.A.



BLOCK PLAN



# PLYMOUTH TECHNICAL COLLEGE

architects : City Architects' Dept.,  
H. J. W. STIRLING, A.R.I.B.A.,  
City Architect  
F. NAPP, A.R.I.B.A., A.M.T.P.I.,  
Deputy City Architect

THE new college will ultimately occupy the southern part of an area of some 28 acres which were set aside as a Cultural Precinct in the "Plan for Plymouth." The ultimate scheme, shown on the block plan, envisages seven blocks of buildings. Namely, workshops; building and engineering; entrance and biology; housecraft including departments for dressmaking, millinery, tailoring, cookery, and a small public restaurant; hostel; students union; administrative including departments of pharmacy and chemistry, general classrooms, administrative departments of physics and mathematics, school of art, school of architecture, college theatre, exercise room and gymnasiums, swimming pool and examination hall.

The scheme illustrated is the building and engineering block, the first part to be completed. The site was immediately available as the area had been completely destroyed by bombing raids during the war. There was





Classroom



Engineering Laboratory

Lecture Theatre

## Plymouth Technical College

most urgent educational needs for workshops and these have therefore been included as a temporary measure on the ground floor until the workshop block is built.

### Construction

The building is steel framed with external walls in Portland stone facings up to string course at first-floor level and with facing bricks above that. Main windows have reconstructed stone frames, mullions and transoms. The spandril walls between the first, second and third floor windows are faced with quartzite. The floors are reinforced concrete with the following finishes: Terrazzo in entrance halls and toilets. P.V.C. tiles in corridors, classrooms and laboratories. Hardwood block floors in staff-rooms, libraries and heads of departments rooms; hardwood strip in general lecture room; Weyroc tiles in building science laboratories; hardened cement screed in temporary workshops except in joinery and woodwork machinery shop which have Weyroc tiles. Windows throughout are single glazed "Carda" mahogany frames, oiled externally and french polished internally.

### Engineering Services

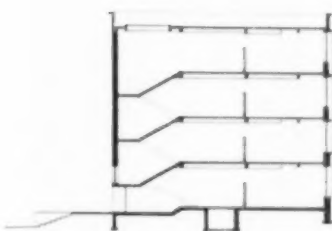
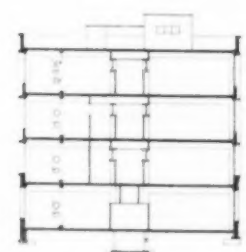
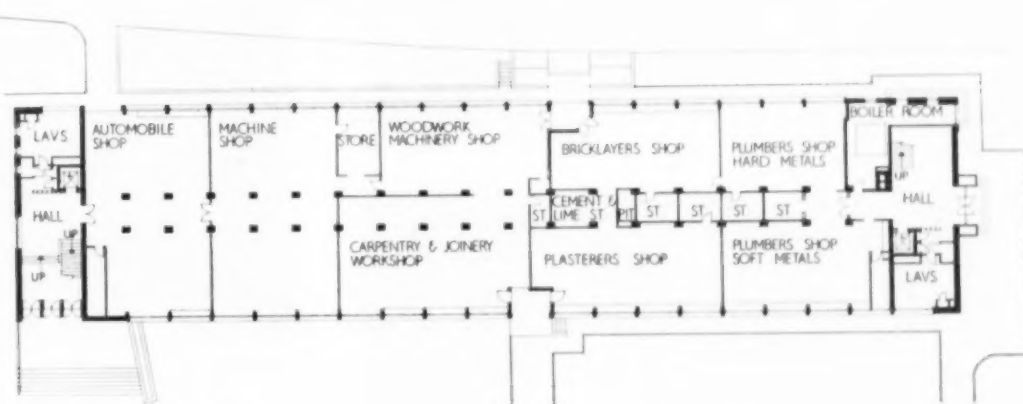
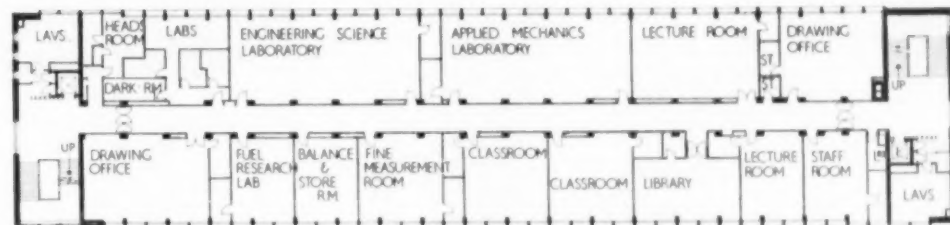
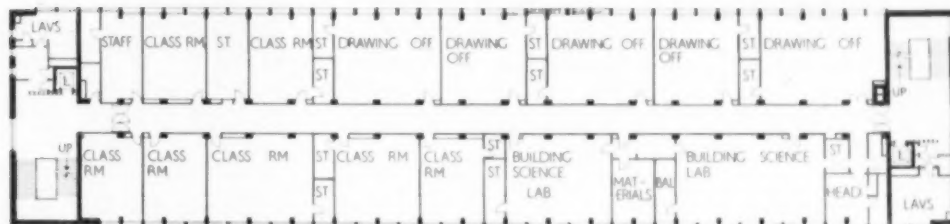
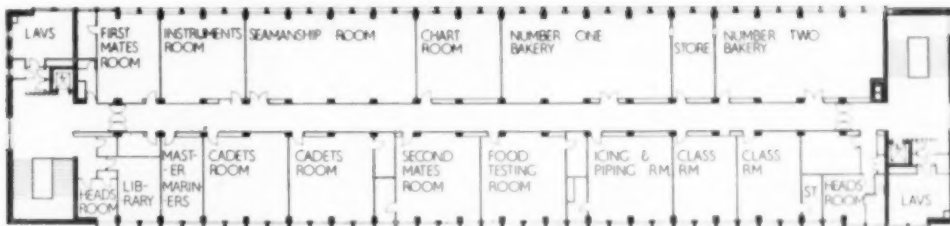
To house mains of the various services, a walking way is constructed below the centre of the building and carries on throughout its length. This walking way will be extended through other blocks as they are erected and completed and will link up eventually in the central chamber below the administration block. Main services are carried up through ducts at either end of the building, from which supplies are carried in wall recesses to serve the various floors.

Heating coils embedded in the ceilings provide warmth for rooms, and panels are incorporated in the corridor floors. Temporary gas boilers are being used until the scheme is sufficiently advanced for the central boiler chamber to be used. Then it is probable that solid-fuel boilers will be installed.

Mechanical extraction of air is provided from all rooms by way of ducts carried above the corridor false ceiling to a vertical duct and so to the fan chambers situated on the floor.

The total cost of the building is approximately £204,310.

Chief Assistant Architect:	A. C. HARRIS
Principal Assistant Architect:	M. COOK
Senior Assistant:	E. BLIGHT
Assistant:	MISS V. TOMS
Heating, Electrical and Ventilation Consultants:	HOARE LEA & PARTNERS
Quantity Surveyors:	MESSRS. GLEEDS

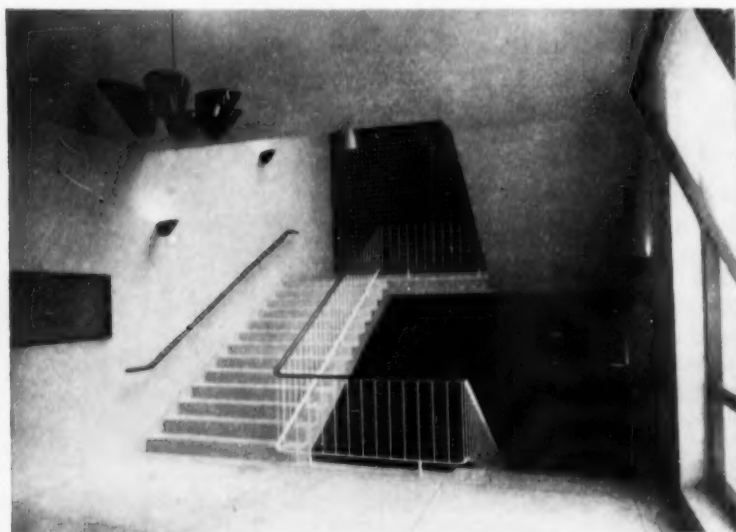


SECTIONS  
Scale: 1 in = 48 ft.

## Plymouth Technical College

General Contractor: A. N. Coles Ltd.

Bricks—Facing: Proctor & Lavender, Ltd. Cork Insulation: Cork Insulation & Asbestos Co., Ltd. Door Frames—Pressed Steel: Williams & Williams, Ltd. Electrical Installation: Drake & Gorham, Ltd. Electrical Light Fittings: G.E.C.; Troughton & Young; Merchant Adventurers of London, Ltd. Floor Tiles: Adamite Co., Ltd. Gas Installation: The South Western Gas Board. Heating & Ventilating: G. N. Haden & Sons, Ltd. Hose Reels: Pyrene Co., Ltd. Lantern Lights: Crittall Manufacturing Co., Ltd. Lifts: Keighley Lifts, Ltd. Portland Stone: Bath & Portland Stone Firms, Ltd. Quartzite: John Stubbs (Marble & Quartzite), Ltd. Reconstructed Stone: F. J. Moore, Ltd. Reinforcement: Square Grip Reinforcement Co., Ltd. Roof Lights: Lenscrete, Ltd. Slate Cills: Bow Slate & Enamel Co., Ltd. Stair Nosings: Adamite Co., Ltd. Stone Carving: Centell & Endicott. Structural Steelwork: Blight & White. Suspended Ceilings: Cole Bros. (Plymouth), Ltd. Terrazzo: South Western Flooring Co., Ltd. Tubular Steel Gates: St. Thomas Metal Works, Ltd. Venetian Blinds: J. Avery & Co., Ltd. Windows: Hulcon, Ltd.



Design on the front of the college in forged aluminium by J. Starkie Gardner in collaboration with the City Architect's Office, Plymouth



3

1 Main staircase

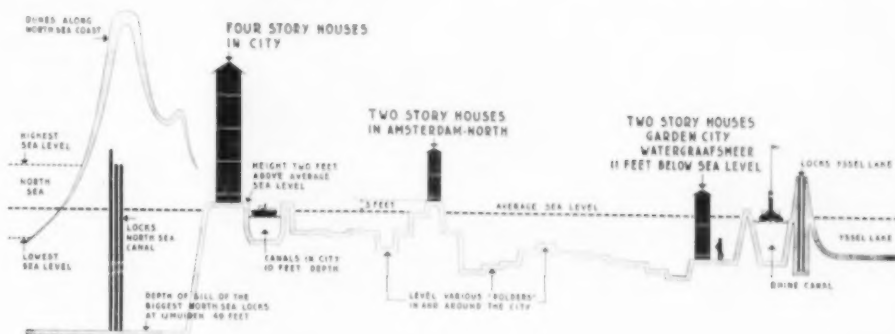
2 Head of main staircase

3 Screen and lift, School of Navigation

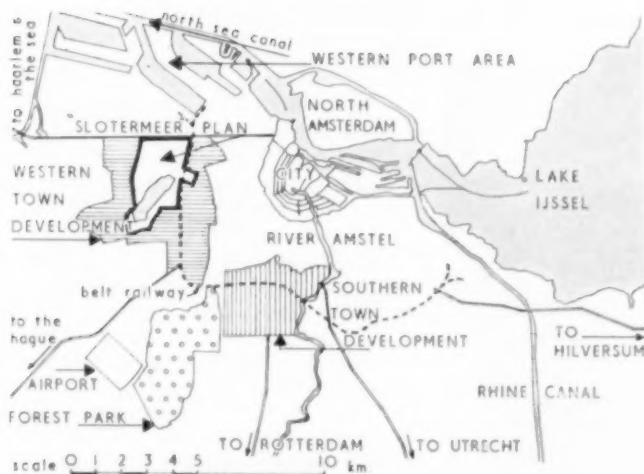


# Planning & Housing in Amsterdam

BY  
ROLF  
ROSNER  
A.R.I.B.A.  
A.M.T.P.I.



30ft piles cast on site and ready for use.



Amsterdam in the year 2000 according to the Master Plan of 1924

UNTIL the end of the sixteenth century Amsterdam had grown slowly, first on one side of the Amstel, then on the other. In the seventeenth century, the Golden Age of Amsterdam, however, the inhabitants could no longer be housed within the old walls. This led, in 1612, to the adoption of a development plan which remained adequate for the next 250 years.

The main feature of this plan was a semi-circle of three concentric canals which gave Amsterdam its characteristic half-moon appearance.

The radii of the three canals were planned as shopping lanes and also as arteries of communication. Along the canals the houses of the wealthy merchants were situated, whilst the outlying districts adjoining them were allotted to the poorer classes.

During the second half of the seventeenth and in the eighteenth centuries nearly 4,000 houses were built which to this day give Amsterdam its architectural brilliance. The great development of the city continued until the end of the eighteenth century.

Amsterdam is a city built on piles. In the oldest districts piles were driven into the boggy soil; most of the houses had basements which were generally damp and easily flooded. Such defects were avoided in the newer districts, where levels were raised with sand transported long distances from the North Sea coast or the Zuider Zee. Such land was drier but by no means firm, and piles had still to be used. For that reason building has remained costly to this day.

The rapid growth of the Dutch population during the latter half of the nineteenth century necessitated the passing of a Housing Act in 1901, which imposed on every community of more than 10,000 inhabitants the obligation of preparing planning schemes. In Amsterdam several



Group of old people's dwellings. Each dwelling has a floor area of 500 sq ft including a bedroom, living room, kitchen, show cubicle, w.c. and store. Usually these bungalows are for married couples; the younger tenants on the estate contribute towards rent reductions for the aged. On many estates up to ten per cent of all dwellings are set aside for old people.

such schemes were prepared; one of these, by Berlage, was adopted in 1917 and subsequently carried out. When, after the first World War, the city boundaries were extended again, increasing the total municipal area from 11,400 to 43,000 acres, the need for a comprehensive development plan became urgent. In 1929 a town-planning section was established within the Department of Public Works, and staffed with numerous specialists. After five years of research the Master Plan was published. Four factors proved to be decisive: work, housing, transport and recreation. A special study on population problems was prepared by a team of demographers who based their findings on migration, birth and mortality rates, and the division of the population into various age groups. Amsterdam, the team concluded, would have a minimum population of 900,000 in the year 2000; possibly even 960,000, if economic conditions remained favourable.



Left: Ornamental pond with five-storey blocks of flats and old people's dwellings on the right.



Right: Two-storey old people's dwellings and five-storey block of flats.

#### HOOFWIJK STRAAT ESTATE, INNER SUBURBS OF AMSTERDAM



Abstract sculptures are not favoured in Holland.

#### Housing

In the Master Plan the industrial areas are located in the North-West and South-East, whilst the new residential districts are in the South and East. The likely number of new homes required by the year 2000, taking the average number of persons per dwelling at 3.37, will be 285,000 for a population of 960,000.

When the plan was drawn up there were 201,000 dwellings in Amsterdam, but one would be wrong in assuming that another 84,000 are required. As the town expands, its inner districts are decreasingly used for housing; eventually this trend will result in the loss of 12,000 dwellings. Clearance of obsolescent development will eliminate another 13,000. Briefly, the 1934 Plan assumes that another 110,000 dwellings must be built. They are to include many

detached and semi-detached houses.

Within the limits of the ring railway the cost of land only permits taller buildings at a density of 34 dwellings per acre in the South, and 44 in the West. Perpetuating an established tendency, housing in the South will be for the higher and in the West for lower income groups. Farther towards the West, beyond the ring railway, so-called garden cities with 28 dwellings to the acre will be built. About 45 per cent of these dwellings will be houses. A number of 12-storey blocks, situated near large open spaces will provide a contrast. For the Southern development beyond the ring railway, the density will be at 22 dwellings per acre, including two-storey houses, two-, three- and four-storey, and in some cases six-, eight- and 12-storey blocks of flats.

The distribution of the population is likely to change appreciably during the next 50 years:—

	1930	2000
Old city ... ..	161,000	88,000
Old outskirts ... ..	388,000	323,000
Existing new quarters ... ..	198,000	168,000
New sections inside belt railway ... ..	—	198,000
New sections outside belt railway (garden cities) ... ..	—	181,000
<b>Total population ... ..</b>	<b>737,000</b>	<b>958,000</b>

In July, 1939, the Municipal Council adopted the detailed plan for a large sector of the Western districts Slotermeer Garden City along the main road to Haarlem and the sea. Here thousands of dwellings have been either completed or are in the course of erection; it is evident that people will live under conditions superior to those in even the best districts of Amsterdam. Slotermeer Garden City is near existing and projected harbour and industrial areas and the population will be predominantly working-class.

Of the 11,000 dwellings, 3,200 will be one-family houses; 1,250 duplex houses; 5,300 four-storey; 950 11-storey blocks of flats, and 350 dwellings for the aged, mainly in bungalows.

In the centre of the district will be a market place with a church, a restaurant, a post office and shops. Elementary and secondary schools, a school for arts and crafts, a school for housekeeping, and several churches will provide secondary points of interest.

Apart from Slotermeer, three more garden cities have been planned, Geuzenveld with 5,000, Slotervaart with 6,200, and Osdorp with 13,500 dwellings.



Slotermeer: Secondary shops with adjoining living accommodation. The clerestory windows give more daylight to the shops.



In Forest Park 37 acres are set aside for water sports, 148 acres for a boat-racing course, 74 acres for sports grounds, 432 acres for meadows and 410 acres for woods.

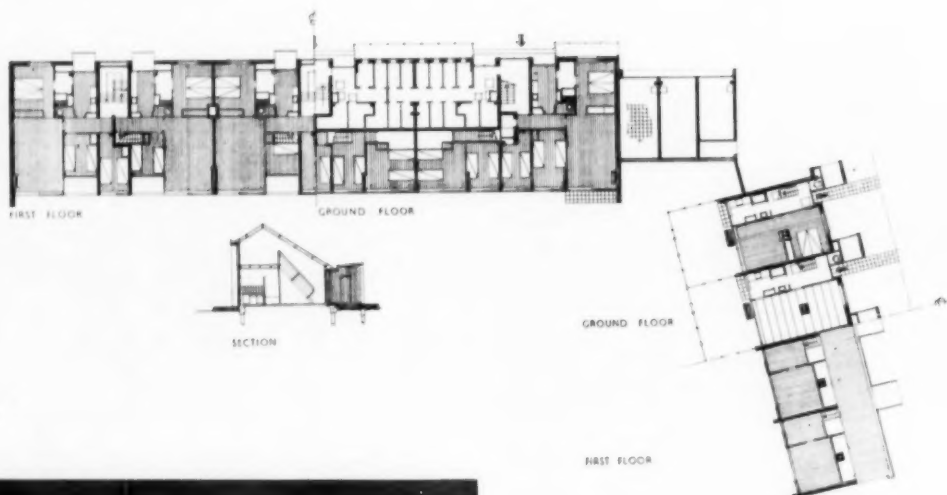
The four garden cities will be grouped around a newly dredged lake, Slotermeer, which has a surface of about 225 acres. The original Slotermeer was reclaimed in 1642. Now, after three centuries, the polder that came into being at that time, Sloterdijkmeerpolder has been turned into a lake again. This lake, surrounded by 185 acres of park with bathing beaches on the western shores and 75 acres of park with playing grounds and sports fields on the eastern shores will provide an exceedingly attractive recreation centre. This will actually reduce the cost of preparing the peaty ground on which the four cities are to be built. The soft and soggy soil is neither suitable for traffic nor the laying of sewers, conduits and cables; therefore, the ground has to be raised with sand and tens of millions of cubic metres of it have to be transported from far away. Not only transport costs make



The four-storey block on the left has flats of identical plans in the upper three storeys. On the ground floor are additional bedrooms for the first-floor flats accessible by private staircase, and tenants' stairs. On the right are old people's dwellings, linked to the block of flats by garages.



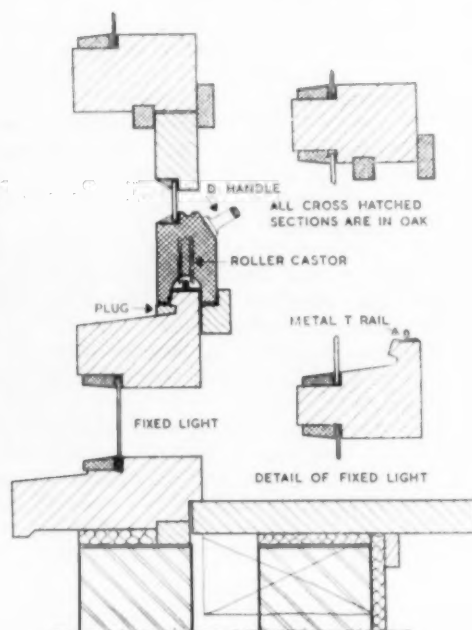
Rear elevation of people's dwellings. Plan of the group below.



## SLOTERMEER



Typical sliding window used in both blocks of flats and old people's dwellings adjoining. Details on the right. Architect: C. De Geus.





this sand very expensive; it is also becoming increasingly difficult to obtain.

Slotermeer has been turned into a lake again because at the bottom of it are millions of cubic metres of sand that can be used at only small transport costs, to raise the ground for the garden cities. The sand, however, is not readily available for use. Various layers of peat and peaty clay must be removed. As the peat and peaty clay have to be deposited somewhere else, they are pumped into the areas destined for parks, for which they are eminently suitable. Once these layers have been removed—and much headway has already been made—the sand is sucked up from a depth of 100 feet by means of demountable 15,000 V. electric cutter suckers. There is no waterway by which the suckers could be brought to Slotermeer, and they therefore had to be transported in sections and assembled at their destination.

A further notable saving was achieved by raising the ground beyond the circular railway by only 6½ feet, although for centuries past the ground within the railway, i.e., in the present city, had always been raised by about 13 feet.

The lower level makes it possible to cover twice as much land with the same amount of sand, while the pumping can be done in about half the time. Thus it is hoped to complete the raising of ground for Slotermeer Garden City in two and a half years, instead of ten, as had originally been expected.

#### **Agricultural and recreational areas**

At present, 20,000 acres of land within the administrative boundary are devoted to agriculture and cattle raising. Whilst much of this land is required for town expansion, some areas are reserved for open-air recreation and a rural belt which is to segregate the old city from the new neighbourhoods. Other areas which are not likely to be required for building purposes have been devoted to horticulture; here market gardeners, who had been dispossessed of their land as a result of town extensions, will be settled.

A careful survey has been made of existing parks, their extent and accessibility. In the new plan, an operative radius of 450 yards was adopted; this represents the maximum distance which mothers with perambulators can be expected to walk to and from the local parks. In other words, the parks are located at intervals of 900 yards. For the larger parks the interval adopted was 1,700 yards, 850 yards were found to be approximately the maximum distance adults will walk to and from the larger parks. The sizes of both the local and the larger parks have



*Part of the main shopping centre. Shops with superimposed flats.*



*Shops with adjoining block of flats.*



*Terrace houses with adjoining premises for a school of dancing.*

SLOTERMEER



*Terrace houses with old people's bungalows in the background.*



*Entrance elevation of terrace houses with adjoining garages.*



*Slotermeer: Rear elevation of terrace houses.*



*Sectional hut for supervisory staff adjoining building site.*

*Corner shop adjoining terrace houses.*

been based on the number of people living within the above radii.

Amsterdam has not been generously provided with natural recreation areas in its immediate vicinity. In 1933 the Council therefore decided to lay out a wooded park South-West of the city.

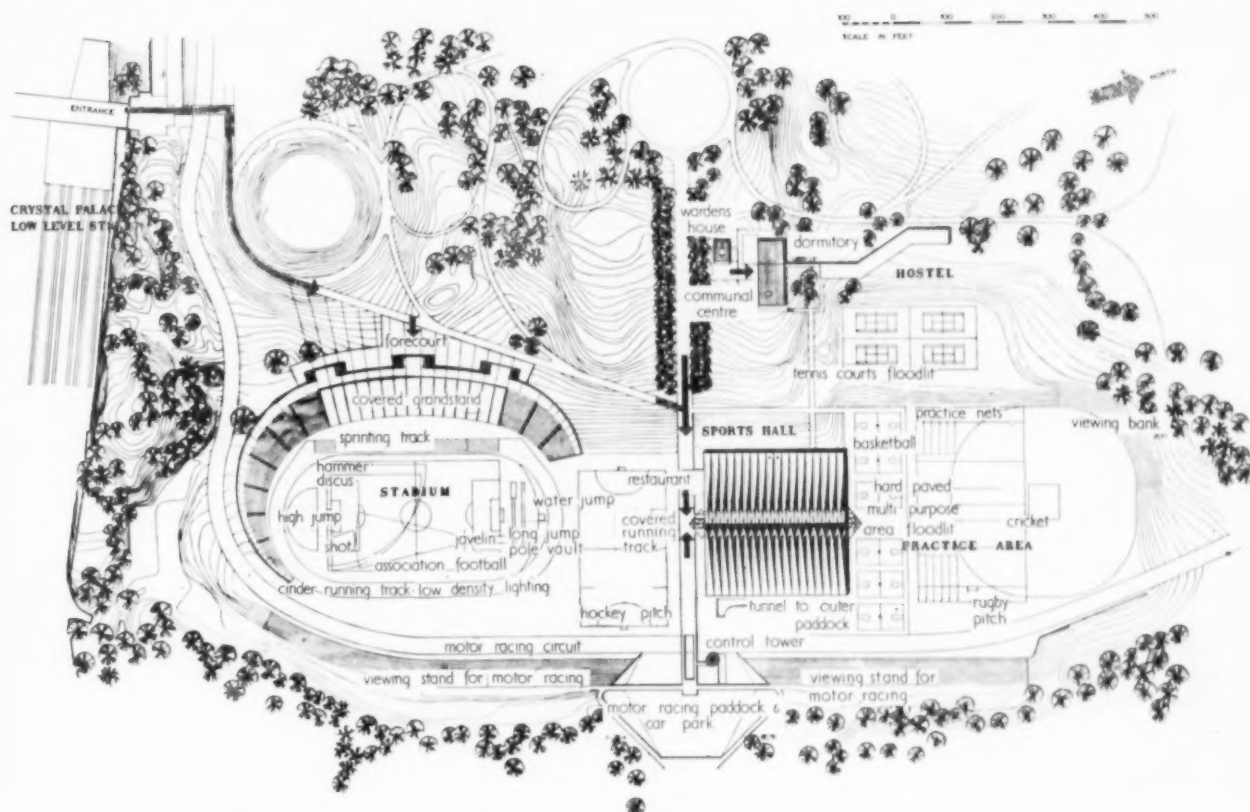
Work on Forest Park was started in 1934 as a relief project for the unemployed, under the slogan: "Five years' work for 1,000 hands." Progress ceased during the war, but after the liberation it was resumed and at present about one-third of the park has been completed. It has been laid out in a polder 12 feet below the level of surrounding streams and canals; this necessitated a drainage system 200 miles long.

In Forest Park 37 acres are set aside for water sports, 148 acres for a boat-racing course, 74 acres for sporting grounds, 432 acres for meadows and 410 acres for woods.

The boat-race course, which is 2,200 yards long and 71 yards wide, has been used for the European rowing championships in 1937 and 1949.

The visitor from England is impressed to see with what resolution the Dutch handle the development of urban areas. Expropriation of large tracts of land is the established initial operation to speed subsequent progress. Expropriation, with compensation, of course, hardly has a sinister ring to a people who over the centuries of common struggle to win land from the sea have developed a different sense of property from ours, so far as possession of the soil is concerned. Already in the Middle Ages a man who had grown too old to till his land and who found himself without a lawful heir, would, in the presence of friends and neighbours, drive his spade into the nearest dyke; that symbolic act signified that he had handed over the possession of his plot to the community; and to this day the polder commissioners, officials elected by the inhabitants of a polder, have a status equal to that of members of the local government.



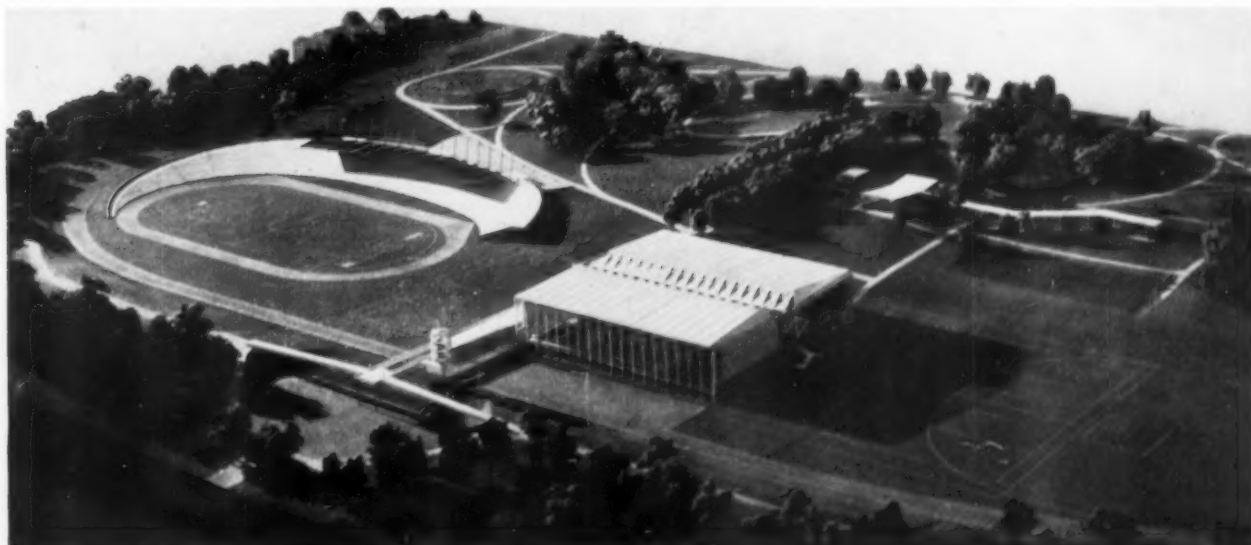


## NATIONAL YOUTH & SPORTS CENTRE, CRYSTAL PALACE

architect to the L.C.C.

J. L. MARTIN, M.A., F.R.I.B.A.

THE existing level site of the sports area at once suggests itself as the most suitable location for the centre. This site which, with certain extensions, totals about 40 acres, has always been used for sporting activities. The sports centre therefore continues a tradition. A centre placed in this position is also conveniently accessible as it lies between the Crystal Palace Low Level Station and the main Penge entrance. Two features which influence the disposition of the buildings and boundaries are the motor-racing track, which forms



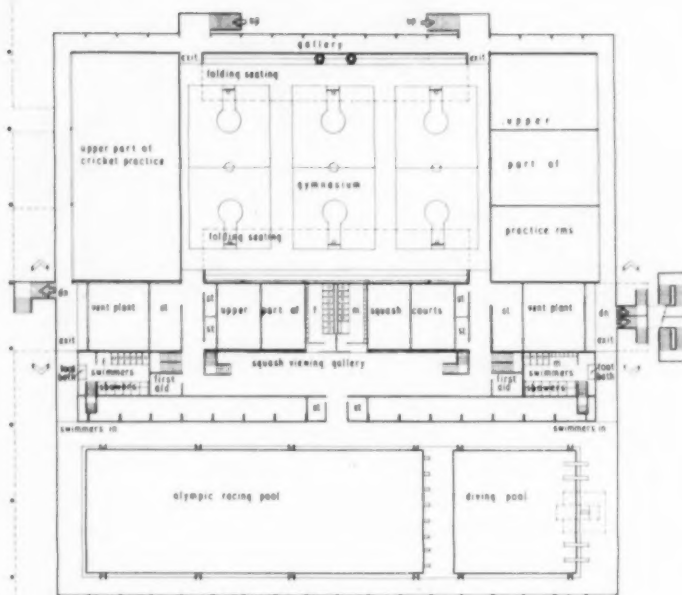
## Crystal Palace Sports Centre

the boundary to the Penge side of the site, and the strong central access of the main avenue of the Crystal Palace.

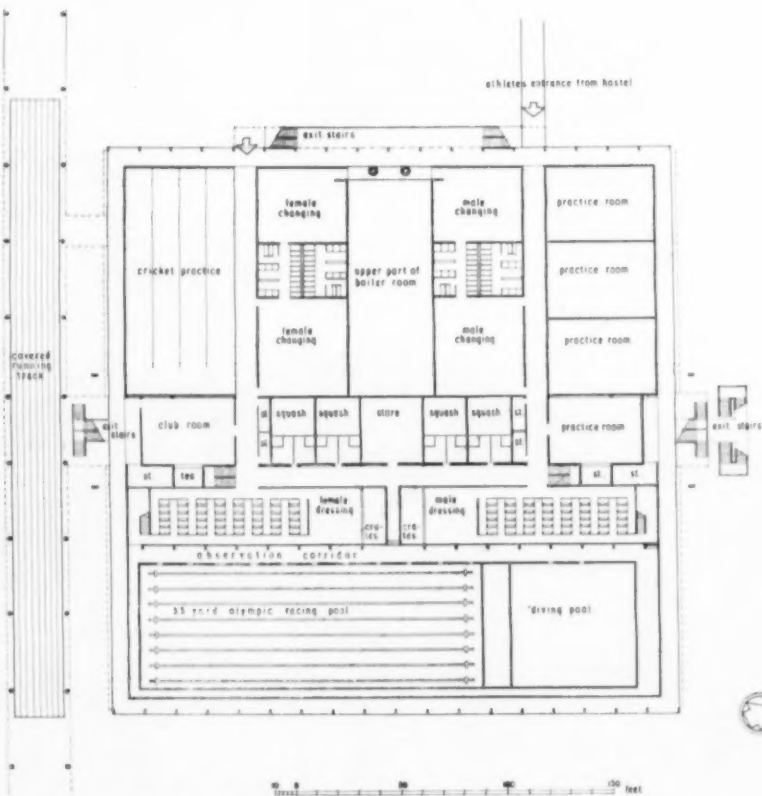
In this layout advantage was taken of the fact that this centre avenue is some 20ft above the level of the sports area. The central avenue is continued across the sports area in the form of a bridge, which provides the main public access to the sports hall. The sports hall is placed alongside this bridge. With this disposition it is possible to place the accommodation at two levels: the main accommodation, gymnasias, swimming bath, public galleries, restaurants, etc., being on the bridge level, and the whole of the changing-room accommodation, practice-room accommodation, etc., being at ground level, where it is related to the open area pitches, the bridge itself forming covered running tracks. The sports hall consequently stands between the two outdoor areas, one including netball pitches, rugby and cricket pitches; the other accommodating the hockey pitch, the central arena for field events with its main stand. The hostel, which is intended to house resident athletes, is sited in sloping, wooded ground, conveniently near to the main sports hall. With this arrangement the motor-racing track remains unaffected. The present proposal shows only the provision for local car parking. The main car parking problem is one which must be solved in relation to the rest of the site and provision for this will be made elsewhere.

### Main Sports Hall

The public approach this building from the bridge level, as has been described, and a central area or spine across the width of the building forms the main public access and viewing area. This spine, which is planned on two levels, runs between the swimming bath on the one side and the gymnasium hall on the other. It provides access to seating for 2,500 in the swimming hall and from 1,500-1,800 in the gymnasium hall.



PLAN AT LEVEL 227.00



LEVEL 217.00

SPORTS HALL



The gymnasium hall can be divided into three separate gymnasia, or alternatively it can be converted into a central display area by the use of retractable seating. The gymnasium hall contains a separate tennis practice area, offices controlling the entrance and a restaurant overlooking the sports field.

Below this main floor level accommodation is provided for changing-rooms for outdoor and indoor work, with separate accommodation for swimmers. There are also four practice rooms, four squash courts, four indoor cricket pitches, a club-room and a first-aid room. A viewing gallery for the squash courts has been arranged. The heating and filtration plant room is placed in the centre of the accommodation, thus ensuring the minimum distances for all the services.

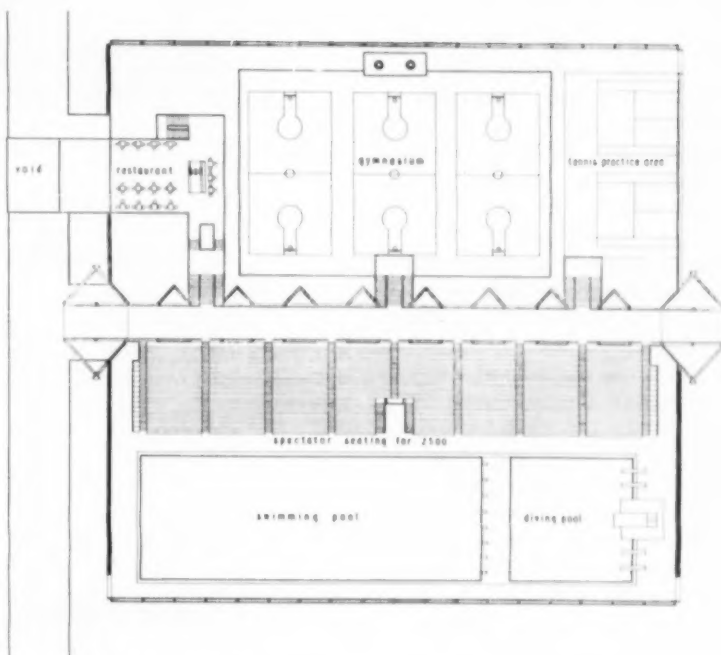
It will be seen that the whole of the services, changing-rooms and all indoor sports activities are therefore housed under a single roof and that the athletes' entrance to the building and the public entrance are clearly separated.

The sizes of the rooms provided are as follows:—  
Racing pool—165ft  $\times$  60ft containing eight racing lanes. Diving pool—(16ft deep) 60ft  $\times$  60ft with two one-metre and two three-metre springboards, two five-metre platforms and one ten-metre fixed platform.

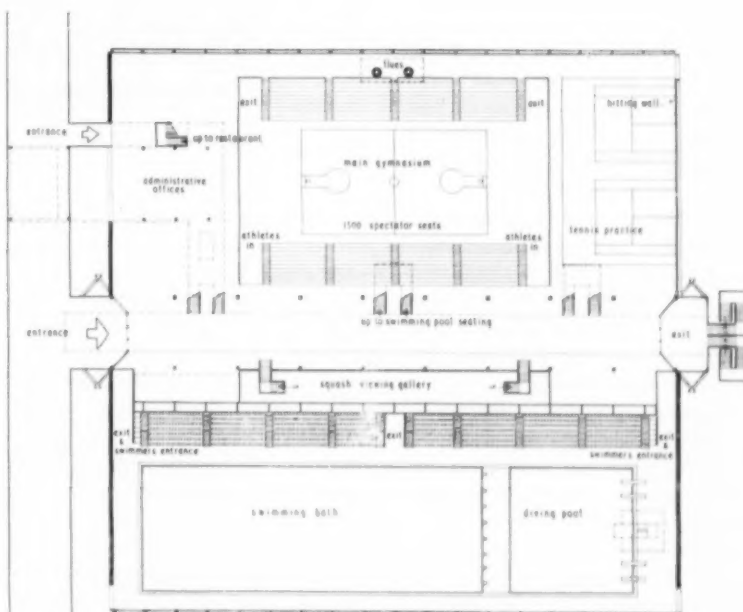
Accommodation for swimmers consisting of: Separate entrance with attendants' office for issue of tickets, etc. Changing-cubicles with built-in lockers (male 40, female 40). Dressing-rooms using a crate system can accommodate 200 men, 200 women. Bath storage and sanitary accommodation for each sex at bath level.

Accommodation for spectators consisting of:—Main gallery entered from the bridge, with ticket kiosks, etc., provided near entry. Upper gallery forming access to pool seating. Tiered seating for 2,500 persons. Lavatories for both sexes to the appropriate scale.

Main gymnasium 150ft  $\times$  100ft. divisible into three smaller gymnasia—100ft  $\times$  50ft. Tennis practice area—88ft  $\times$  55ft. Four general practice rooms—52ft  $\times$  36ft each. Four



LEVEL 254.00



LEVEL 237.00

SPORTS HALL

## Crystal Palace Sports Centre

squash racket courts—32ft × 21ft each. Cricket practice room (4 pitches)—110ft × 52ft. Two gymnasium stores—32ft × 20ft each at gymnasium level. Additional storage for equipment at practice room level 30ft × 32ft. Club room 45ft × 32ft. Two first-aid rooms—15ft × 10ft each. Athletes' changing-rooms (2) for men; one for outdoor, 42ft × 35ft, one for indoor 46ft × 42ft. Ditto, for women; one for outdoor 42ft × 35ft, one for indoor 46ft × 42ft. Lavatory accommodation for athletes of each sex divided equally for the use of internal and external athletes—42ft × 26ft for each sex.

Covered running track—350ft × 32ft. Restaurant area—80ft × 36ft. Offices—General 50ft × 20ft. Three small offices 16ft × 9ft

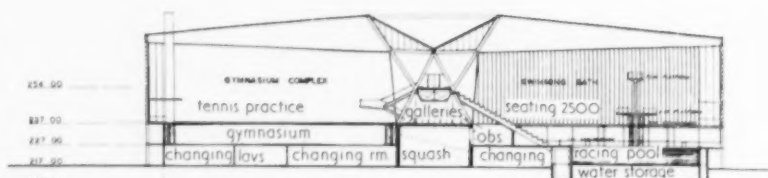
### Covered Stand and Arena, etc

The main arena is sited on the Crystal Palace Low Level Station side of the main central bridge. Its stand is placed to the north-west where it can be cut into the slope of the ground, thus eliminating heavy constructional work. The stand as shown on the plan provides seating for 12,000 and in addition some 3,000 spectators could stand around the arena. It would also be simple in the future to extend the seating accommodation if necessary by extension to the stand and by building a double-sided stand between the arena and the motor-racing track. The layout makes it possible to enlarge by 50 per cent the ramp used for viewing motor racing. An awning has been designed to provide some covered accommodation for the new stand; this awning is demountable however, and it will thus be possible to use it on occasion for the viewing ramp for motor racing.

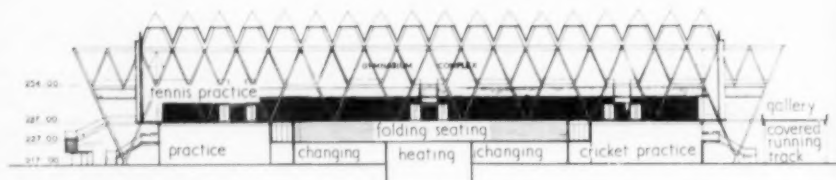
The facilities provided under this heading are as follows:—Stand for 12,000 spectators. Arena to Olympic and National Playing Fields Association specifications catering for all track and field events. The running track, which has 6 lanes, is lit by low-level lighting units. Within



SOUTH ELEVATION



SECTION



SECTION



EAST ELEVATION

SPORTS HALL

the track an Association Football pitch is provided—330ft × 210ft.

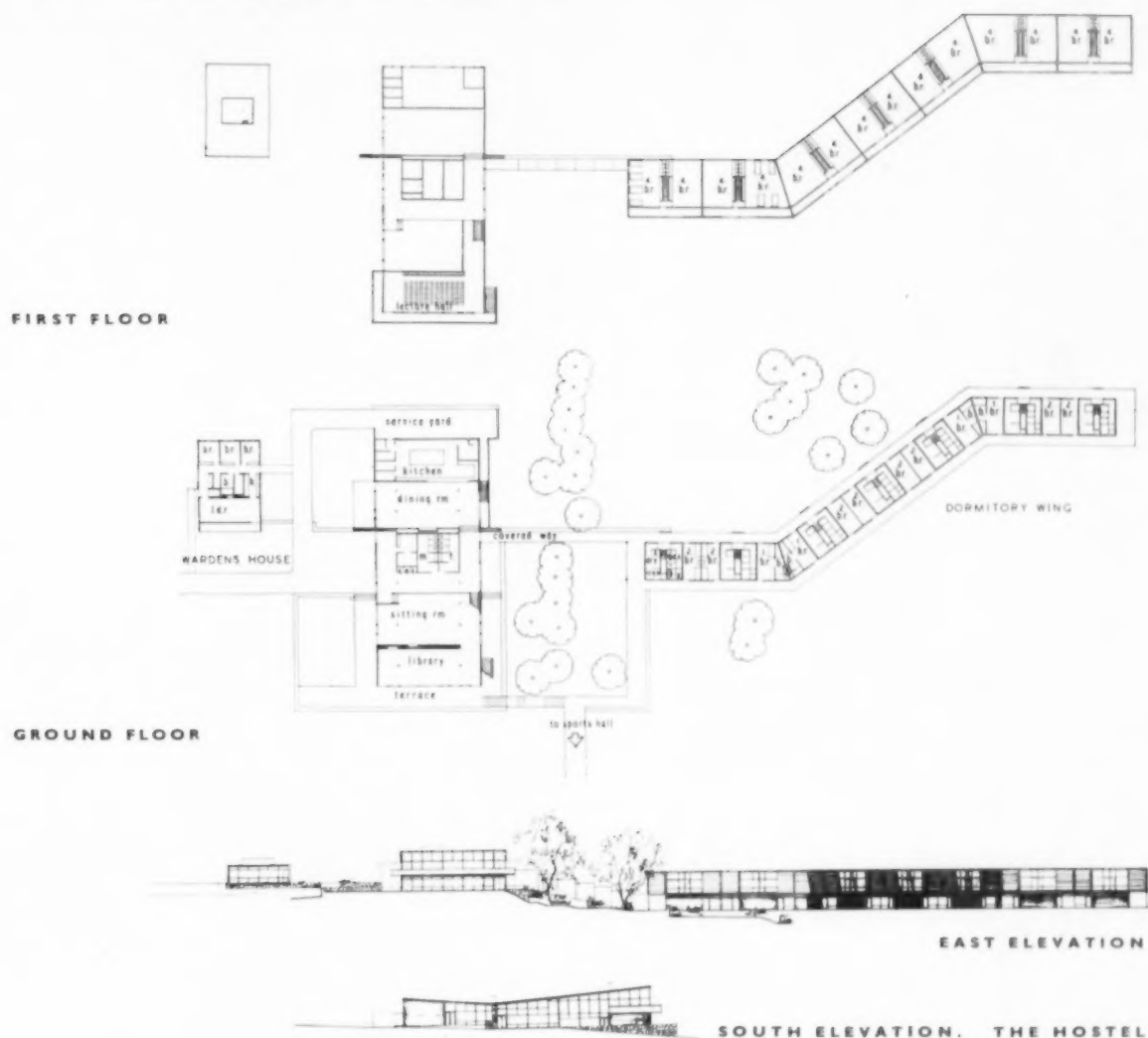
The remainder of the playing fields area (i.e., on either side of the sports hall) provides the following:—1 hockey pitch 300ft × 180ft. 1 rugby pitch 380ft × 215ft. 6 netball pitches 100ft × 50ft each, which may be used as basket ball pitches or tennis courts; cricket table; 4 hard tennis courts 120ft × 66ft each.

### The Hostel Group

The placing of the hostel on a sloping hillside site allows an informal grouping where an effort has been made to relate the buildings closely to the landscape. The building is planned with the main dining and recreation accommodation in one block; the other block, following the

contours of the land, being arranged as a dormitory wing. The accommodation in the dormitory is planned so that it can be used in the most flexible manner.

Normal capacity:—12 single bedrooms (each with lavatory basin); 14 dormitory units for 6 persons each; each with 2 lavatory basins; total 96. Maximum capacity:—12 double bedrooms; 14 dormitory units for 8 persons each; total 136. Sanitary accommodation:—21 W.C.s; 7 showers; 7 baths; 7 drying rooms and 7 ironing rooms in pairs equally divided throughout the sleeping accommodation. Dining and communal room—50ft × 25ft; kitchen and kitchen storage—50ft × 20ft. Lounge and library space—50ft ×



45ft; Lecture room—50ft  $\times$  20ft. Cloakroom accommodation for both sexes—15ft  $\times$  10ft each; Administrative office and first-aid room—15ft  $\times$  10ft. A small three-bed-roomed house is provided for the warden.

#### Construction of Main Building

In essence, the building consists of a flat shelf at bridge level containing the gymnasium and the swimming bath areas, with public access at different levels running across the centre of this shelf. This sub-structure and foundation is of reinforced concrete faced with brick. Advantage has been taken of this arrangement to place the main supporting structure to the roof along

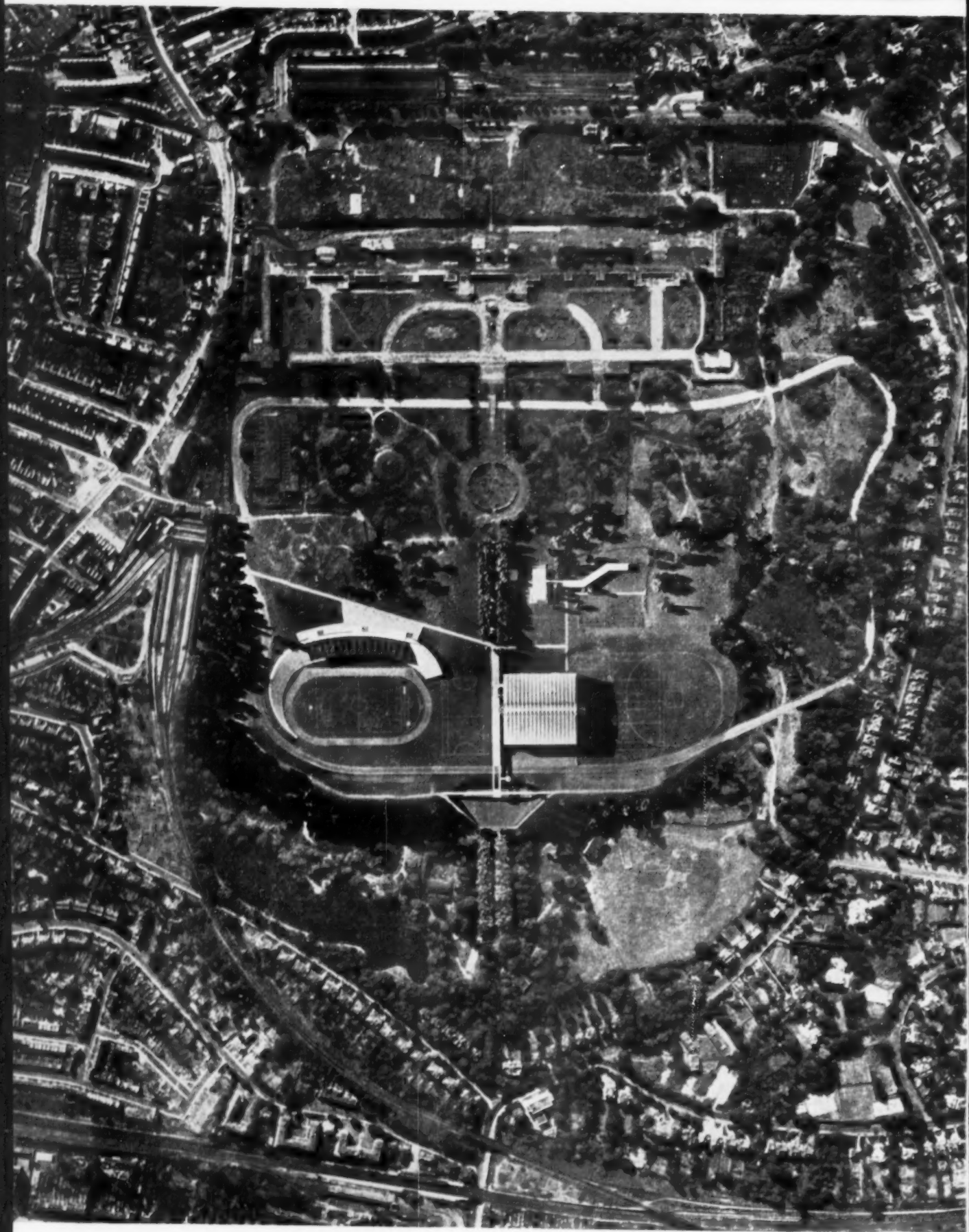
the line of public access in the form of a triangulated spine construction in steelwork. This gives the required overall stability and also supports the main longitudinal access ways through the building.

The roof itself consists of two wing-like structures springing from this spine. These structures, which have a prismatic form, are made up of interconnected and mutually supporting frames. The external screening consists of infilling panels from floor to roof formed either in glazing or in brickwork according to the need of the interior plan. Vertical external louvres are used in front of some of the glazing areas to prevent glare to the spectators. These frames are pre-stressed with tension ties which

connect their apices across the line of the supporting spine structure. By applying a predetermined force to these ties the stress distribution within the roof structure is controlled to give the most economic use of the materials employed. The outer edges of the roof structure are given the required support by the mullions of the external glazing. The load carried by these mullions is controlled by the tension ties between the two roof sections which are prefabricated in units and providing also the necessary insulation and internal finish.

assistant architects:  
N. W. ENGLEBACK  
B. G. JONES  
M. J. ATTENBOROUGH

*An aerial view of the site with the sports centre imposed is shown overleaf.*





# **THE MARGARET McMILLAN TRAINING COLLEGE, BRADFORD PHASE I: TEACHING BLOCK**

## **ARCHITECTS:**

CLYDE YOUNG & BERNARD ENGLE, F.F.R.I.B.A.

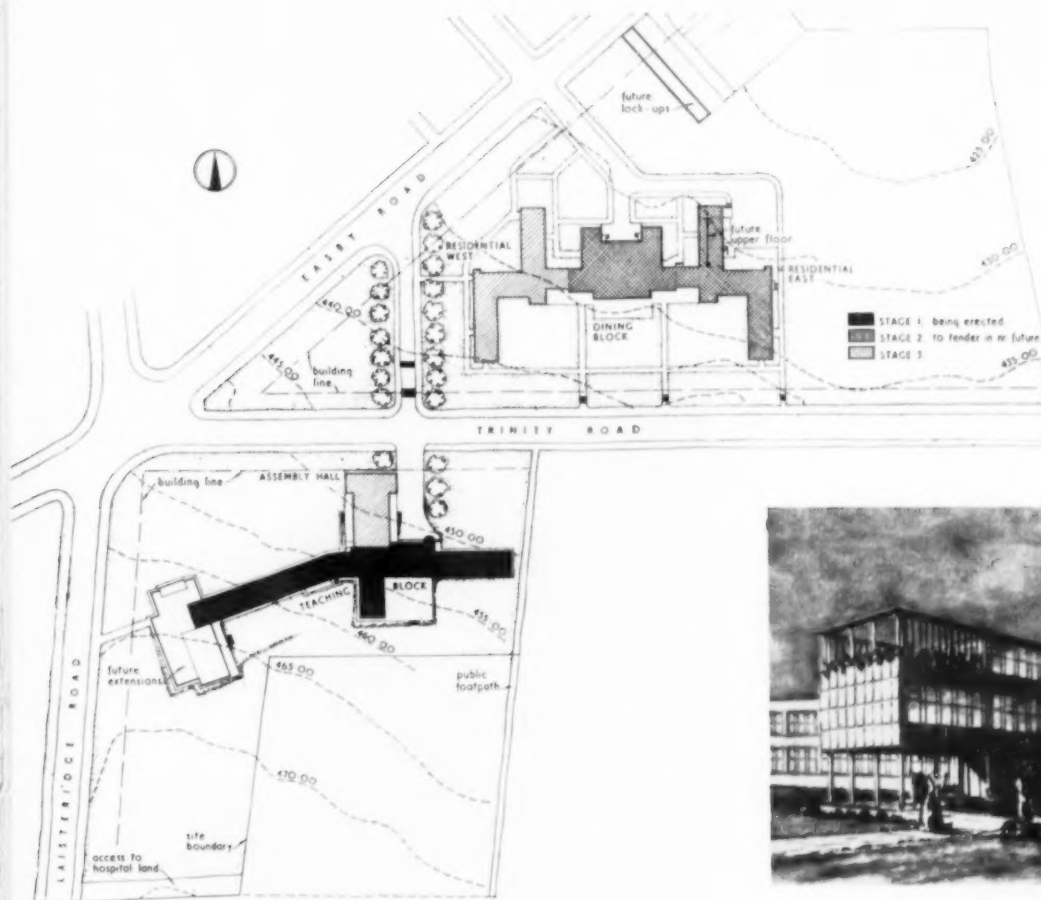
CHIEF ASSISTANT: V. C. MAYER, A.R.I.B.A.

## **CONSULTING ARCHITECT:**

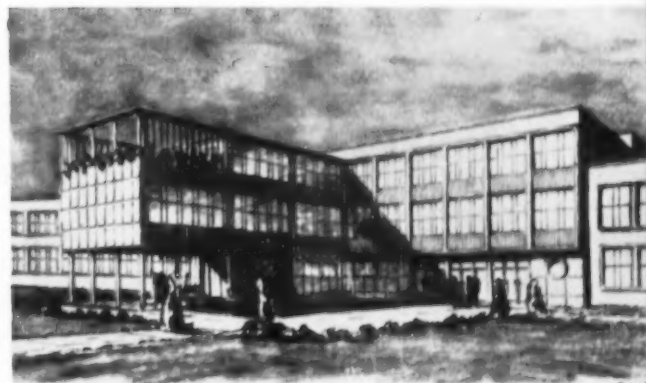
W. C. BROWN, Dip-Arch., A.R.I.B.A., Dip.-T.P.,  
Bradford City Architect



View of library  
from east showing  
close resemblance  
to earlier  
drawing by  
Bernard Engle



Site plan with  
teaching block  
in solid black



**T**HE first appeal for a memorial to Margaret McMillan was launched in December, 1945, to commemorate Margaret McMillan, the Scotswoman who started the Nursery School Movement in Great Britain. She made her home in Bradford and it was, therefore, suggested that a memorial college should be built in the town where she started her work.

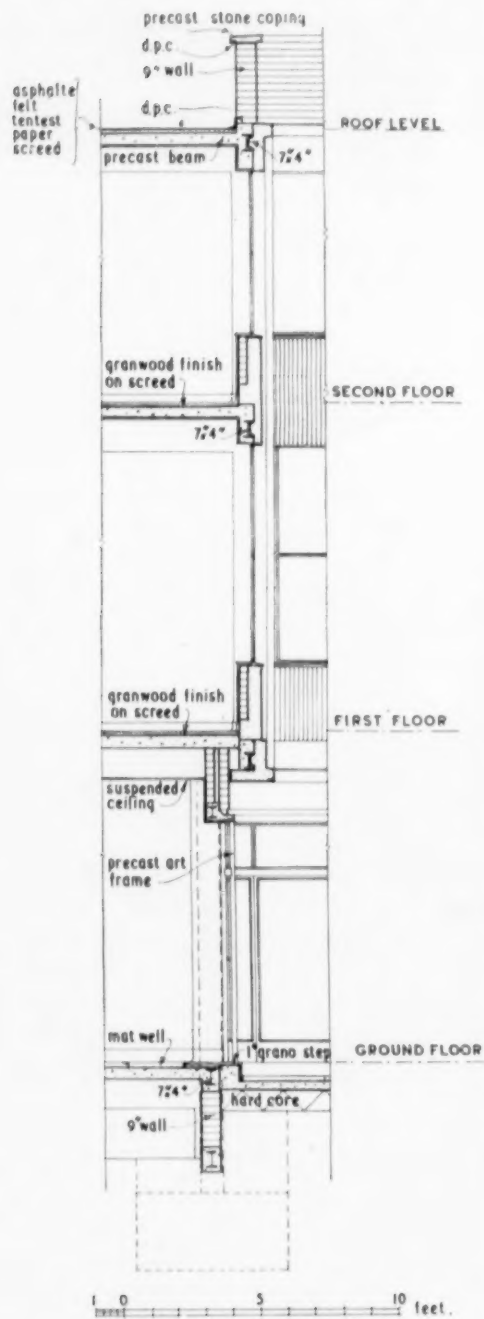
The fund was inaugurated at a meeting in the House of Commons convened by Mr. Gilbert McAllister, the late Mr. Arthur Greenwood and supported by Mrs. C. R. Attlee and Lady Astor.

The site for the erection of this college was given by the City of Bradford. The Ministry of Education promised to give a loan, but it was soon recognized that a college on the scale planned could not be maintained by private means collected by appeals, and therefore the Ministry of Education was prepared to carry on what the Margaret McMillan Fund had started. From the date the Ministry took up the reins each Inspectorate of each Teaching Branch was asked to criticize the plans and indicate the equipment and layout desired. It was the wish of the Ministry of Education to create a teaching college which should incorporate all ex-

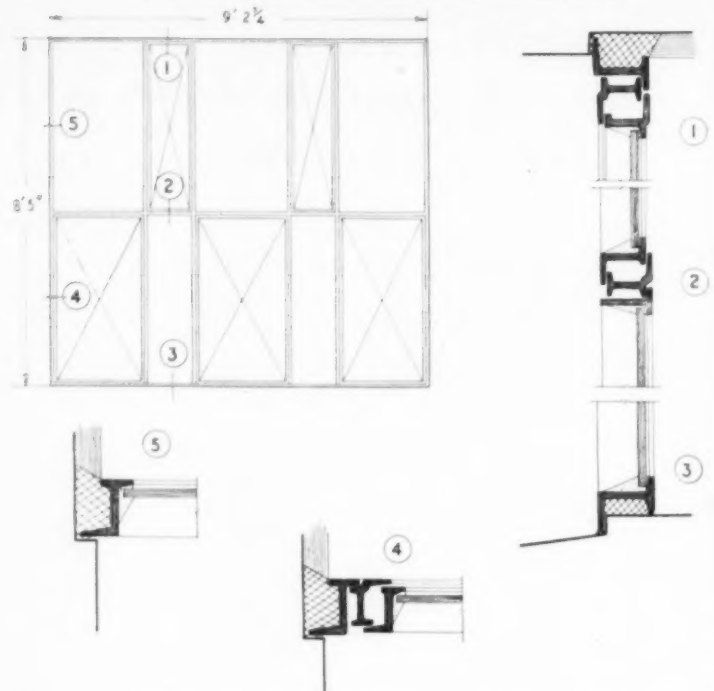
(Continued on page 704)

**Margaret McMillan  
Training College:  
Teaching Block**

PLANS ON PAGE 703

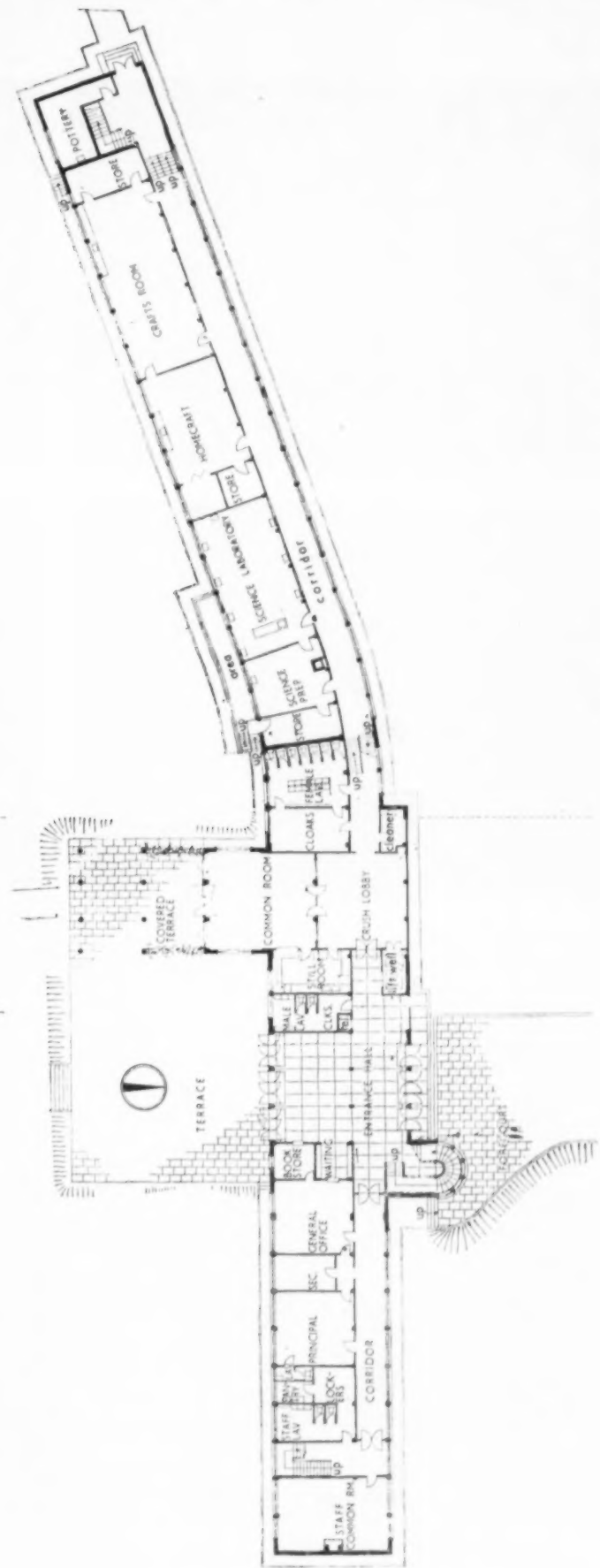
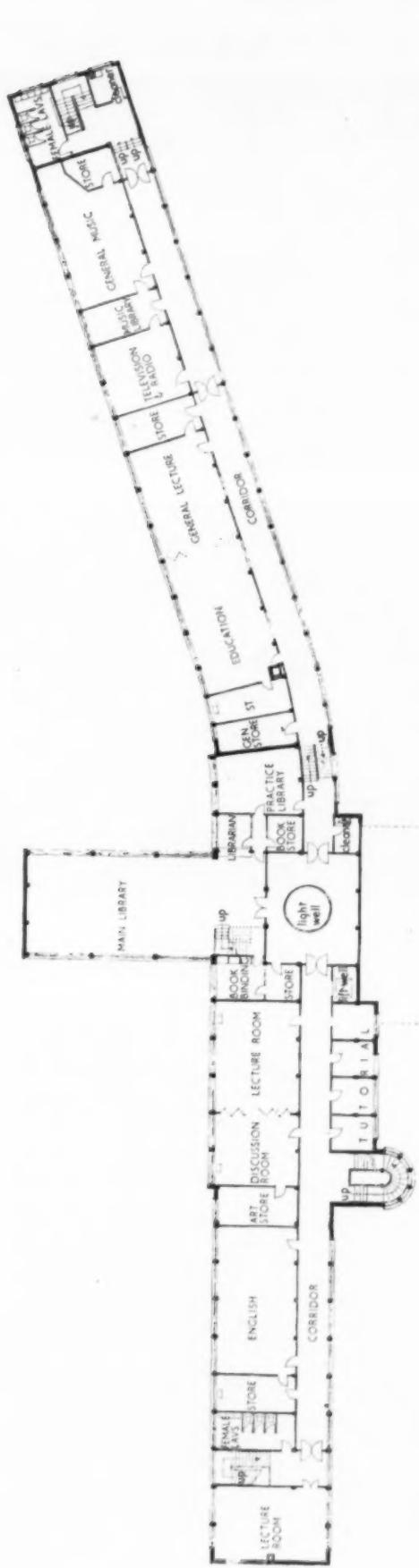


cross-section through bay.



Typical detail of steel sashes. Scale:  $\frac{1}{4}$  F.S.







Main staircase

Classroom corridor

Entrance hall with view of patio

The entrance hall

*Continued from page 701*

periences gathered in recent years and to be really the last word in this class of building.

The site the City of Bradford selected for the college was roughly 12 acres, within view from the town centre. It is intersected by three roads and has a fall in level of about 20ft.

It was decided to erect the college in three phases. The first phase is a teaching block on the south side of Trinity Road, the second phase is a dining block linked up with the residential wing east, the latter containing 75 study bedrooms and teachers' accommodation. This phase is now completed as far as the building is concerned, and the orders for furnishings are about to be placed. Phase III will consist of the residential wing west, linked up with the dining block, and the assembly hall which will be added to the teaching block, as shown on the accompanying site plan.

The access road to the teaching block entrance will be taken up across the road by a tree-lined avenue, to link up the buildings on the north side of Trinity Road architecturally with those of the teaching block.

The pupils started work in the teaching block in January of this year.

The main entrance hall opens to the rear of the building facing south, to a large patio with some steps leading up to a garden bench. The floor of the main entrance hall is

covered with black and white terrazzo. The steel stanchions in the hall are covered with zinc rendering thus still showing the shape of the steel stanchions. The web is coloured dark blue while the flanges of the stanchions are coloured pale blue in Tyrolean plaster finish to match the wall of the entrance hall.

The main staircase, semi-circular, which leads up to the second floor, is finished in white terrazzo with a black tubular handrail.

The ground floor, left from the main entrance hall, contains only administrative offices. The classrooms on the right are planned on a very simple layout system having corridors facing north and the classrooms facing south-east.

In order to obtain a strict south-east aspect for the main teaching rooms the right wing curves south, thus creating a slight movement in the extended elevation avoiding a long rigid front, as expressed in the corridors.

The whole of the first and second floors contain various classrooms adapted to the education of nursery school teachers, with a number of small tutorial rooms interspersed where three or four students can meet in discussion groups. Classrooms are provided for science laboratories, wood craft, the making of toys, art classes, dress-making, weaving, a special room for pottery—an electric kiln and the necessary turntables were installed.





Crafts room

Principal's office

General classroom to be divided by folding doors in centre

Television room and record library

On the first floor, near the music room, is a special room for television and gramophone records.

The second floor contains a large top-lit exhibition hall, geography room, and jutting out south into the garden a study or quiet room with a large balcony in front where pupils can enjoy the open air. This study room is accessible from the main hall, top-lit, with a centre well which allows light from the circular glazed dome to penetrate right down to the crush lobby on the ground floor to which, under Phase III, the assembly hall will be added.

The study room on the top floor is connected with a light staircase to the main library underneath. The walls of this large room, east and west, are completely glazed interrupted by structural columns only. The south side of the library is walled up and covered with book shelves and has, as a centre piece, a large bas-relief to create a focal point to this rather important room.

The library fittings and furniture were dedicated to the Margaret McMillan Memorial Fund by the National Union of Teachers. All the woodwork, specially designed, was carried out in polished walnut, with a light green carpet.

Under the library, again accessible from the crush hall on the ground floor, is a large common room where students can take their "elevenses" and afternoon teas—a small kitchen is attached to provide for snacks.

A dining room for 250 people is provided for on the other side of the road in the special dining block, which will be opened for use towards the end of this year.

The assembly hall, which will be added to the north of the crush lobby under Phase III, will have a floor space of 2,400 sq ft excluding the stage and music practice rooms. The latter thus being entirely removed from and insulated against the classrooms to avoid sound transmission.

The structure of the teaching block is basically steel framed on a 10ft grille which allowed prefabricated reinforced concrete floor joists in economical spans.

The centre block of the building, which is three storeys high, is worked in blue-brown bricks. The brickwork itself is divided in 3ft×3ft 6in panels to give the surface added texture, as can well be seen on the external south wall and the library wing jutting out into the gardens.

The side wings of the building are bricked up between the steel frame in light golden facings to give a definite contrast to the centre blocks. To deviate further from the dark brick of the centre building the horizontal pointing is off-white and the perpendicular pointing in the colour of the bricks, thus emphasizing the horizontal lines.

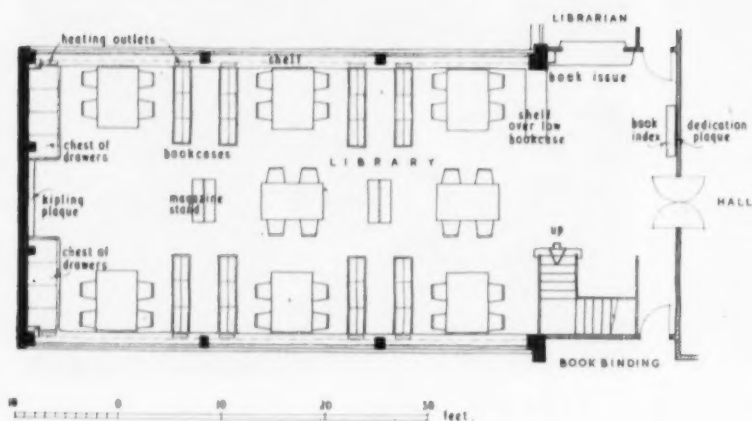
Most of the furnishings were specially designed for the job such as wall benches, laboratory tables, etc., which had to be fitted in.



Library from stair to study room



Corner of library with stair to study room



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Heal's Contracts, Ltd. (Principal's Room).  
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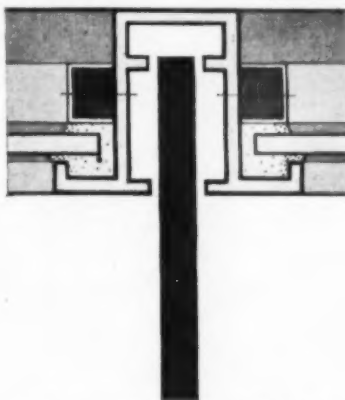
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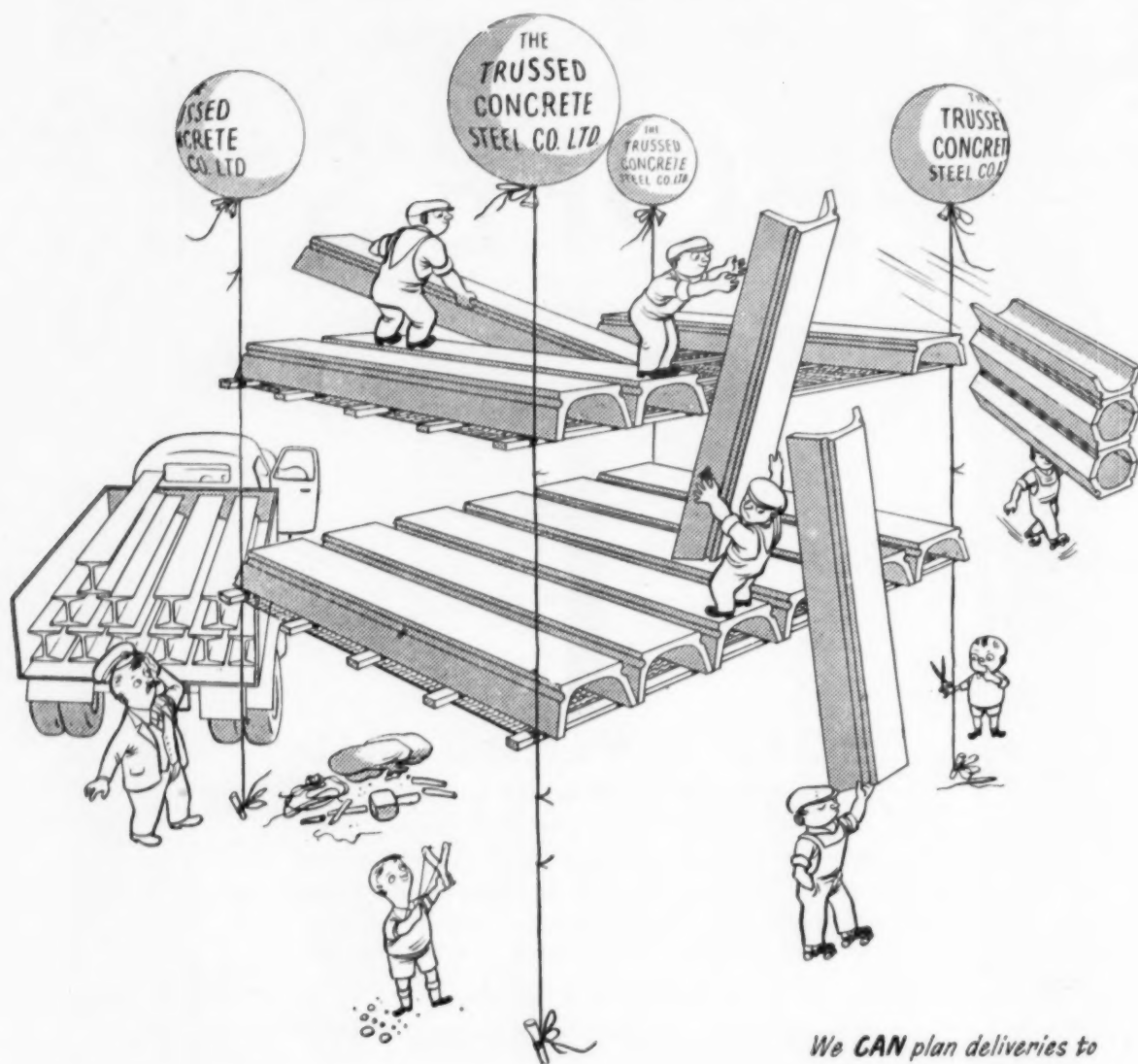
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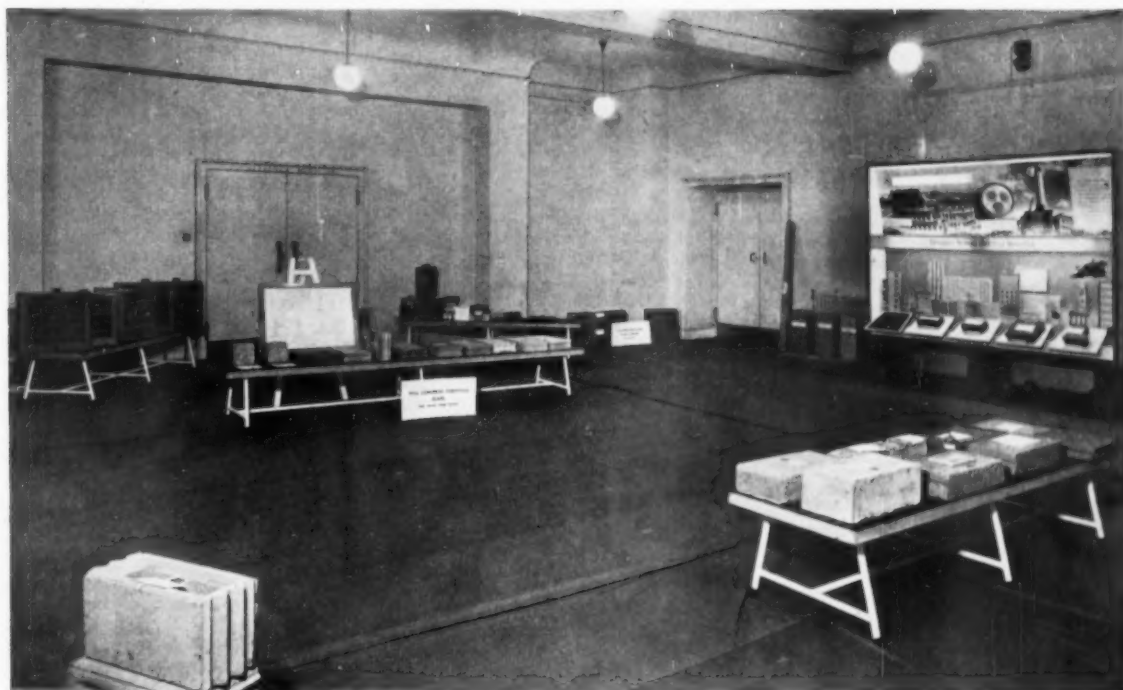
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The exhibition, which closes at the end of this week, is on the third floor of the B.E.A. premises in Winsley Street, W.1 (which is on the West side of Waring & Gillows). The exhibition is open to architects and other interested persons.

## B.E.A. Pulverized Fuel Ash Products Exhibition

THE rapid growth in the burning of pulverized coal in power stations is making available large quantities of a new raw material which should be able to contribute to economy—and even to higher quality—in building and civil engineering work.

This new material is pulverized fuel ash the output of which has risen from about 750,000 tons in 1947 to over 2,000,000 tons a year to-day and is expected to be some 4,000,000 tons by 1960.

As the pulverized coal, suspended in air, is burned in the combustion chamber, the ash is fused into small separate spheres, a few of which are hollow. As it emerges it is collected by electrostatic precipitators.

This p.f. ash is very similar to the volcanic ashes, or pozzolanas, used by the Romans in combination with calcined limestone as a cementing material when they built such enduring monuments as the Colosseum and the Pantheon. This combination continued to be widely used until the discovery of Portland cement less than 150 years ago. But unlike pozzolanas found in the earth's crust, p.f. ash is already finely divided and needs no crushing or pre-treatment.

Only in recent years have the possibilities of utilizing this potentially valuable raw material begun to be systematically investigated in this

country, although there has been some commercial use, for example, in the U.S. Now, however, research has yielded enough data on which extensive commercial development might be based.

The most promising avenue for the economic utilization of p.f. ash in quantity appears to be:

- (1) Mixed with clay to produce bricks;
- (2) To replace part of the cement, or sand, in concrete;
- (3) To make concrete-type building blocks;
- (4) To form a lightweight aggregate, by sintering.

### (1) Bricks

Experimental work by the Building Research Station and several firms has demonstrated that it is possible to make good bricks from p.f. ash and clay in the proportions 80/90 per cent: 10/20 per cent, provided the clay is of the plastic kind.

On a laboratory or pilot scale, bricks of good average quality have been made from 85 per cent Hams Hall (Birmingham) p.f. ash and 15 per cent Wilnecote clay, both slurry mixed and dry mixed and fired at temperatures ranging from 900 degrees to 1,090 degrees centigrade.

Rye House (Hoddesdon) p.f. ash and London clay from Nazeing in the same proportions have also been made suc-

cessfully into bricks. Trials with Hams Hall ash mixed with clays from the coal measures in the proportion 60:40 have been carried out at two of the National Coal Board's brickworks in the Midlands Division. When submitted to the usual tests the bricks containing the p.f. ash from one works did not differ significantly from those made entirely from clay. At the other works those containing the ash were slightly more porous and slightly lower in strength; but both sets of bricks containing ash were of excellent quality.

On the North-East Coast and in the Edinburgh district, the N.C.B. is taking samples of p.f. ash for experimental brickmaking.

In Surrey and Sussex several brickworks are successfully using p.f. ash in varying proportions.

Since it is unusual to find an existing brickworks near enough to a power station to dispense with the need to transport the ash on wheels, one problem is the means and cost of such transport. The ideal vehicle for the purpose would probably be on the lines of the spherical containers devised for the pneumatic delivery of cement in bulk. But this problem need not present insuperable difficulties once there is a firm long-term order for p.f. ash in quantity.

Another way round the transport problem is the erection of a new brick-

works adjacent to a power station preferably located near a big market for bricks. Rye House, Hoddesdon, is near the new towns of Stevenage and Harlow, not far from Welwyn, Luton and Bedford and on the very edge of the Metropolis. A site is available and all the necessary plans for the development of a brickworks on this site are in the course of preparation. Rye House turns out enough p.f. ash to make about 10,000,000 bricks a year. (The national output of bricks is of the order of 7,000 million—or 20,000,000 tons—per annum.) The Authority is very willing to consider offers by brickmakers to use this site and the development plans.

Plans for similar developments are being investigated elsewhere by brick firms.

## (2) Concrete

In the United States and Canada p.f. ash is now widely used in mass concrete work to replace 20 per cent of the cement used in ordinary concrete.

Experiments at the British Electricity Research Laboratories at Leatherhead have confirmed American (and Russian and German) experience that concretes in which up to 20 per cent of the cement has been replaced by p.f. ash have a rather lower initial strength than ordinary concretes. But, with the lapse of time, the strength approaches that of ordinary concrete and at three months the two are equal. This is to be expected since the pozzolanic action of the fly-ash depends on the lime set free by the hydration of the cement, which increases with time.

For mass work where there is no early load to bear, this slower strengthening has advantages. Compared with straight Portland cement concrete, that containing p.f. ash gives off less heat so that temperature gradients across large masses of concrete are smaller and the danger of surface cracking is thereby reduced. Users say there is less segregation of aggregate and less "bleeding" with fly-ash concrete and that it is more resistant to attack by sulphates and the action of sea water. It is also claimed that fly-ash concrete is rather more workable.

In this country fly-ash concrete is already being used by the North of Scotland Hydro-Electric Board for dams and other civil engineering work. B.E.A. is using it for roads. In any large national road-building programme the use of p.f. ash could save cement and money.

## (3) Building blocks

Methods have been perfected of manufacturing from p.f. ash building blocks designed to replace bricks, concrete and masonry in all forms of walling, load-bearing and otherwise. Names known to the industry include "Melcrete," "Thermalite," "Licon."

The aim is to secure speedier, cheaper and perhaps better building; higher thermal insulation; lower loads to transport and easier and better

finishing or facing. Such blocks use a very high proportion of fly-ash and will probably in time absorb a high proportion of the output of some power stations.

## (4) Aggregate

By the sintering process p.f. ash can be made into a light-weight aggregate approximately half the weight of gravel. The concrete made with such aggregate has not the full load-bearing qualities of that made with the usual aggregates, but a very large proportion of concrete work is not required to bear heavy loads; it is used to cover, clad and fill in steelwork. In such applications the reduction in weight for a given volume has important advantages. A lighter concrete cladding means a lighter steel structure and a saving of metal. At works, the cost of p.f. ash aggregate per ton will probably be rather higher than the cost of gravel. But as less weight will be required for a given volume of concrete, the higher cost per ton at works should normally be offset by savings on transport and in the weight of aggregate required.

Indeed, since the p.f. ash aggregate can frequently be made very near the building site (at power stations in cities, towns and populous areas) while gravel pits are often remote, it may well prove, ton for ton, no more expensive than gravel delivered to the site where it is required—and a ton of p.f. ash aggregate will go nearly twice as far.

Several firms of building contractors of national repute are actively considering plans to manufacture the aggregate by various different processes on power station sites. Some are well ahead with experiments and the Authority is offering every facility.

Since the national output of aggregate approaches 40,000,000 tons a year, this outlet for p.f. ash holds out considerable promise.

While the main use for p.f. ash aggregate would undoubtedly be for light-weight concrete it could also be used to make building blocks in substitution for the well-known clinker block made from power station clinker. Possibly bound with p.f. ash cement, these aggregate blocks would be roughly of the same weight as clinker blocks but considerably stronger and generally better products. Successful experiments in making them have been carried out.

Apart from a few proprietary building blocks, none of the known methods of utilizing p.f. ash has yet been commercially exploited on any scale in this country. Yet in several of the applications outlined above, the material promises to be of considerable value to the building and civil engineering industries, while the quantity available is constantly growing.

Now that basic research work—and experience in other countries—has demonstrated the possibilities, there is a need in this country for much more practical experiment, more extensive trials on an industrial scale and commercial development.

## TIMBER NOTES

**F**REEDOM to import fibre building boards into this country from December 1 will greatly affect the one section of the timber trade that has been short of supplies this year. The import quota system, even when supported by maximum capacity from the British board mills, prevented any ample stocks of various brands of hardboard and insulation board being acquired by the merchants.

Hardboard was short for many months this year, but as the position eased so the trouble was transferred to insulation board, as factory owners sought this material to cut coal bills this winter, particularly as there has been a threat of a coal shortage. They have been impressed by the case put by the insulation board industry showing how costs can be reduced when roofs are correctly lined with these boards.

Production overseas is not fully occupied, and there will be little trouble obtaining the better supplies required by this market. Prices should vary very little from the present level, though some small increase is expected, partly to offset the general rise in freight rates. Just at the moment the stock position is worse than ever, due to the dock strike, but a change should be seen before the end of the year, with a rapid improvement in 1955.

In the softwood market there can now be no doubt about the course of prices for 1955 in the joinery qualities. Already more than 200,000 standards have been bought in Sweden and Finland for 1955 (none of this material can arrive before next April) and most of it is in redwood unsorted and fifths. For good brands of 7in unsorted redwood the f.o.b. price per standard has been between £83 and £85, with a reduction of no more than £10 for fifths. Some mills have already sold their complete production for 1955, and it is apparent that there simply is not enough good joinery softwood to meet the demand. In these circumstances the higher prices were inevitable, for the values quoted must mean a rise on the prices now being paid by builders for their softwood. This winter will be used by the timber trade to push up their prices to cover the new replacement level.

In the hardwood trade prices are rising and stocks are falling. This has been the result of the dock strike, a sudden increase in demand, and an earlier slump period in this section of the trade. Shippers reduced production when prices fell, and they cannot now meet quickly the demands for bigger supplies. Good-quality dry oak is far from plentiful and is also expensive.

Plywood importers have been busy arranging contracts for next year with Russia and Finland. The pattern has been set for prices almost at current levels (just a little higher in some cases), but obviously there will be no hope of cheaper plywood for many months to come, in spite of early forecasts to the contrary.

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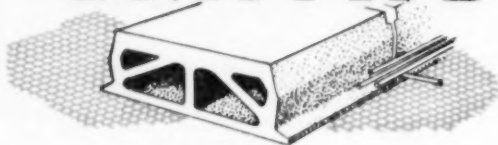
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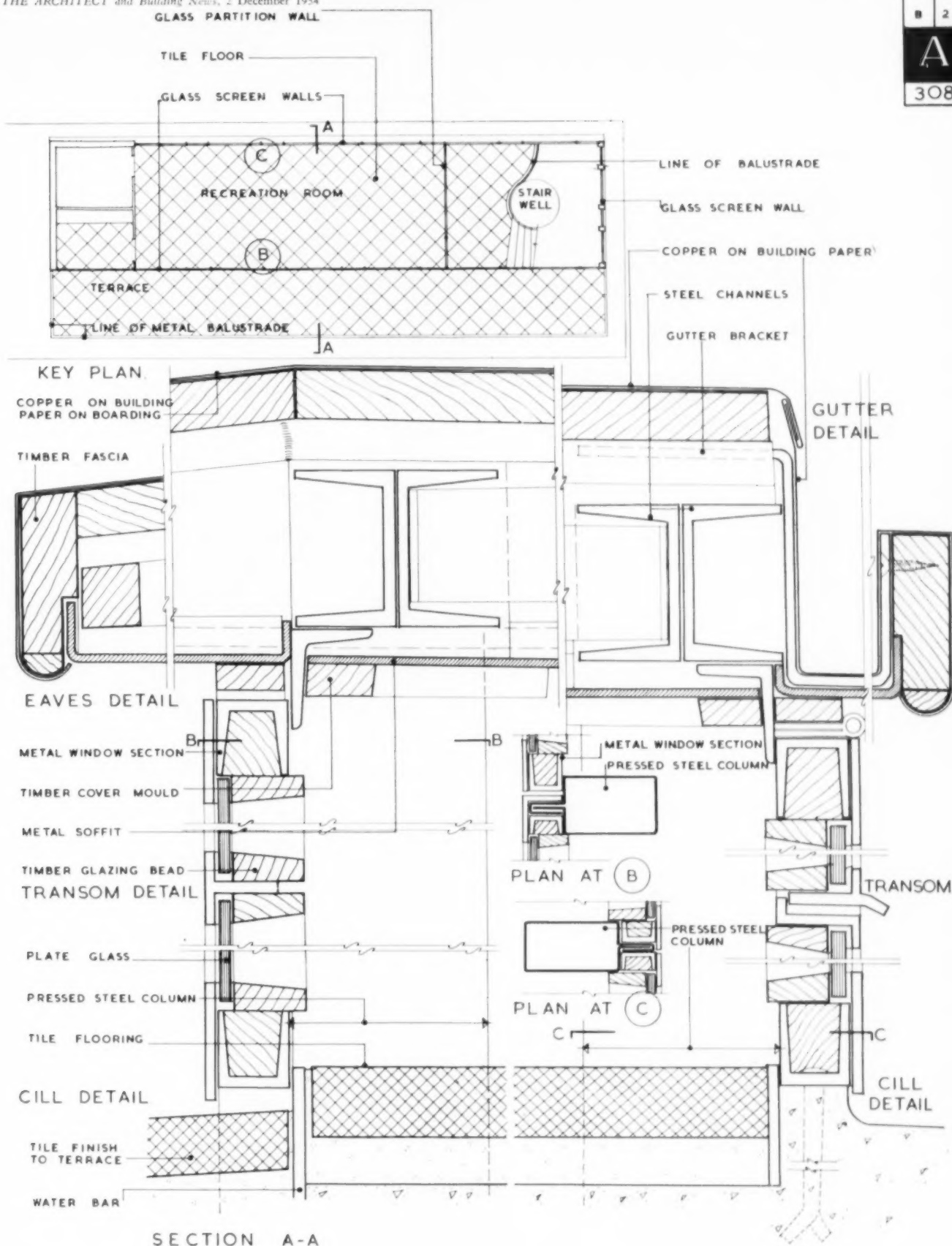


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## CONTRACT • NEWS •

### OPEN

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**BARROW-IN-FURNESS B.C.** (a) Alterations and erection of extensions to Public Library, Ramsden Square. (b) Engineer and Surveyor, Town Hall. (c) 2gns. (e) Dec. 22.

**BATH C.C.** (a) 11-storey block of 44 flats, Snow Hill. (b) Messrs. W. E. Underwood and Son, 21, Gay Street. (c) 2gns.

**BRIDLINGTON B.C.** (a) Public conveniences adjoining the Grand Pavilion. (b) Borough Engineer, Town Hall. (c) 2gns. (e) Dec. 11.

**CHIGWELL U.C.** (a) Extension to existing Council Offices, Loughton. (b) Messrs. Tooley and Foster, Midland Bank Chambers, Buckhurst Hill, Essex; with names of 2 architects for whom comparable schemes have been executed. (d) Dec. 10.

**CRANBROOK R.C.** (a) 18 houses and 4 bungalows at Clay Hill, Goudhurst. (b) Council's Architect, Council Offices, Hill House. (c) 2gns. payable to Council. (e) Dec. 10.

**COWBRIDGE R.C.** (a) Block of 2 houses and 3 blocks of 2 houses at Gileston site, with street works. (b) Wyndham Rees Hawkins, 41, Eastgate Street. (e) Dec. 15.

**DARTMOUTH B.C.** (a) 14 aged persons' dwellings, Davis Road, Townstal Estate. (b) Borough Engineer, 12, Victoria Road. (e) Dec. 14.

**EAST RIDING C.C.** (a) Secondary school, Hornsea. (b) County Architect, County Hall, Beverley. (c) £2. (e) Dec. 22.

**EAST SUFFOLK C.C.** (a) Extensions to Lowestoft Grammar School, approx. cost between £55,000 and £65,000. (b) County Architect, County Hall, Ipswich. (d) Dec. 10. (e) Jan. 14.

**ESSEX C.C.** (a) Erection of (1) Basil-don Timberlog Secondary School; (2) Dagenham Marks Gate infants' school; (3) additional first-floor accommodation at Dagenham County High School. (b) County Architect, County Hall, Chelmsford. (d) Dec. 6.

address it is the same as the locality given in the heading, (c) deposit, (d) last date for application, (e) last date and time for submission of tenders. Full details of contracts marked ★ are given in the advertisement section.

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**\*FAILSWORTH U.C.** (a) 12 dwellings and ancillary road works, Wrigley Head. (b) Engineer and Surveyor, Town Hall. (c) 2gns. (e) Dec. 22. See page 38.

**\*FAILSWORTH U.C.** (a) 12 dwellings, Bardsley Fold. (b) Engineer and Surveyor, Town Hall. (c) 2gns. (e) Dec. 22. See page 38.

**HALE U.C.** (a) 72 brick houses, Delahays Road Estate. (b) Engineer and Surveyor, Council Offices, Ashley Road. (c) 2gns. (e) Dec. 17.

**HAWARDEN R.C.** (a) 5 shops with 3 flats over. (b) Architect, Council Offices, Hawarden, Chester. (c) 5gns. (d) Dec. 8. (e) Feb. 12.

**HONITON B.C.** (a) 3 pairs of dwellings, Langford Road Estate. (b) Antony Lamb, 2, Prospect Place, Ottery St. Mary, Devon. (c) 3gns. payable to Council. (e) Dec. 13.

**KING'S LYNN T.C.** (a) 11 dwellings, Horsley's Court. (b) G. Holmes, Clifton House, Queen Street. (c) 1gn. (e) Dec. 11.

**LANCASTER R.C. DIOCESAN SCHOOLS COMMISSION.** (a) Secondary modern school, Longridge Road, Preston. (b) W. C. Mangan, 2, Ribbleside Place, Preston. (e) Feb. 15.

**LINDSEY C.C.** (a) 1 police house, Kirtton, Lindsey; 2 pairs of police houses, Nelson Street, Gainsborough. (b) County Architect, County Offices, Lincoln. (e) Dec. 15.

**LITHERLAND U.C.** (a) 74 houses, Ford Estate. (b) Surveyor, Town Hall. (c) 2gns. (e) Dec. 20.

**MARLOW U.C.** (a) 14 houses, Westhorpe Road, and 2 houses, Newtown Road. (b) Messrs. Henry Cooper and Sons, 6, The Forbury, Reading. (c) 2gns. (e) Dec. 21.

**NEW FOREST R.C.** (a) 14 pairs of houses, Langdown Croft, Hythe; and 6 pairs of houses, Ewell Way, Salisbury Road, Totton. (b) Engineer and Surveyor, Council Offices, Lyndhurst. (c) 2gns. (e) Dec. 13.

**\*NORTHFLEET U.C.** (a) 6 flats, Coldharbour Road Estate. (b) Engineer and Surveyor, Council Offices. (c) 2gns. (e) Dec. 21. See page 38.

**READING B.C.** (a) Extension to the Aged Persons' Hostel, 78, Bath Road. (b) Borough Architect, Town Hall. (c) 2gns. (e) Dec. 17.

**SALE B.C.** (a) 22 dwellings, Gratrix Lane No. 2 Development (Contract A). (b) Borough Engineer, Town Hall. (c) 2gns. (e) Dec. 9.

**STOCKPORT T.C.** (a) Erection of Peel Moat secondary school, Buckingham Road. (b) Director of Education, Town Hall. (c) 3gns. (e) Jan. 16.

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**STRATFORD-ON-AVON R.C.** (a) 47 houses and 10 bungalows, Henley-in-Arden. (b) Messrs. J. E. Bagnall and Son, York House, Great Charles Street, Birmingham, 3. (c) 2gns. (e) Dec. 30.

**SUNDERLAND B.C.** (a) Erection of (1) 4 shops and flats and 12 garages, Cockermouth Road, and (2) 4 shops and flats and 6 garages, Castleford Road, Hylton Castle Estate. (b) Borough Architect, Grange House, Stockton Road. (c) 2gns. (e) Dec. 18.

**\*WALTHAM HOLY CROSS U.C.** (a) Entrance gates, including brick piers and wing walls, King George's Field. (b) Engineer and Surveyor, Town Hall, Waltham Abbey. (e) Dec. 23. See page 38.

**WARMLEY R.C.** (a) 44 houses, Park-wall Estate. (b) Clerk of the Council, Warmley House, Warmley, Bristol. (c) 2gns. (d) Dec. 11.

**WEST RIDING STANDING JOINT COMMITTEE.** (a) Erection of police premises at (1) Haigh Road, Rothwell; (2) Claypit Lane, Rawmarsh; (3) Turnsteads Avenue, Cleckheaton; (4) Alexandra Road, Mexborough; (5) East Pinfold, Royston; (6) Station Road, Hambleton, Selby; (7) Mill Lane, Barlow, Selby; (8) Tinker Lane, Meltham; (9) Village Street, Norwood Green, Halifax; (10) St. John's Street, Honbury Bridge; (11) Braithwell Road, Maltby; (12) Cliffe Lane, Crigglestone; (13) Bradford Road, Menston; (14) Long Lane, Clayton West. (b) County Architect, "Bishopgarth," Westfield Road, Wakefield. (c) 2gns. (e) Dec. 24.

**WEST SUFFOLK STANDING JOINT COMMITTEE.** (a) (1) Beat house with office at Bures; (2) Inspector's house, Hamilton Road, Newmarket; (3) 2 pairs of houses, Edinburgh Road, Newmarket. (b) County Architect, 13, Westgate Street, Bury St. Edmunds. (d) Dec. 3. (e) Jan. 10.

**WHITBY.** (a) Erection of the St. Hilda's Priory Chapel at Sneaton Castle, Whitby. (b) C. D. Taylor, 41, Baxtergate, Whitby. (c) 3gns.

**WIDNES B.C.** (a) Erection of (1) 3-storey block comprising 6 shops and 6 maisonettes and (2) 2 blocks of 3-storey flats comprising 24 dwellings, Crow Wood Estate. (b) Borough Architect, Brendan House, Widnes Road. (c) 5gns cheque payable to Corporation. (e) Dec. 14.

**WILTSHIRE C.C.** (a) Classroom at Wingfield School. (b) Council's Clerk, County Hall, Trowbridge. (c) 2gns cheque. (d) Dec. 13. (e) Jan. 11.

**WORCESTER C.C.** (a) Alterations and improvements to kitchen, servery, heating chamber and rear entrance to Guildhall. (b) City Engineer, 22, Bridge Street. (c) 2gns cheque payable to Corporation. (e) Dec. 14.



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**EALING B.C.** (1) 154 houses and 11 old peoples' houses. (2) Lime Tree Estate. (3) T. F. Nash, Contractors, Ltd., Hayes, Middlesex. (4) £245,353.

**LIVERPOOL CORPORATION.** (1) 79 dwellings, etc. (2) Tamworth Street. (3) Direct Labour. (4) £130,000. (1) Roads and sewage. (2) Lee Park, Gateacre. (3) Netherton Building and Construction Co., Ltd., Sandy Road, Liverpool, 21. (4) £187,936.

**CHESHIRE C.C.** (1) Main portion of new County Offices. (2) Chester. (3) J. Gerrard and Sons, Ltd., Swinton, Manchester. (4) £347,788.

**SHOREDITCH B.C.** (1) Blocks of flats. (2) Wenloch Barn Estate. (3) Tersons, Ltd., 4, Dollis Park, London, N.3. (4) £128,884 and £44,512.

**NORWICH CORPORATION** (1) 116 dwellings. (2) Heartsease Estate. (3) Direct Labour Organisation. (4) £141,203.

**SHEFFIELD CORPORATION.** (1) Superstructure for College of Technology. (3) Direct Labour Department. (4) £334,163.

**LEEDS CORPORATION.** (1) 236 dwellings. (2) Intake Lane. (3) Wm. Airey and Sons (Leeds), Ltd., Eldon House, Leeds 2. (4) £275,391.

**READING CORPORATION.** (1) 43 houses. (2) St. Michael's Estate. (3) Mitchell Bros. (Reading), Ltd., Reading. (4) £66,145. (1) 54 dwellings. (3) F. M. Gant Estates, Ltd., Caversham, Reading. (4) £74,597.

**NOTTINGHAM CORPORATION.** (1) Erection of a women's residence. (2) Woodborough Road. (3) John Cawley, Ltd., 151 Canal Street, Nottingham. (4) £144,933.

**LONDON, W.C.** (1) Shops and flats. (2) Grays Inn Road. (3) Gee, Walker and Slater, Ltd., 100, Park Lane, London, W.1. (4) £23,000.

**LONDON, W.** (1) Offices, for Dursley Securities, Ltd. (2) St. James' Square, S.W.1. (3) Harry Neal, Ltd., 117, Baker Street, London, W.1.

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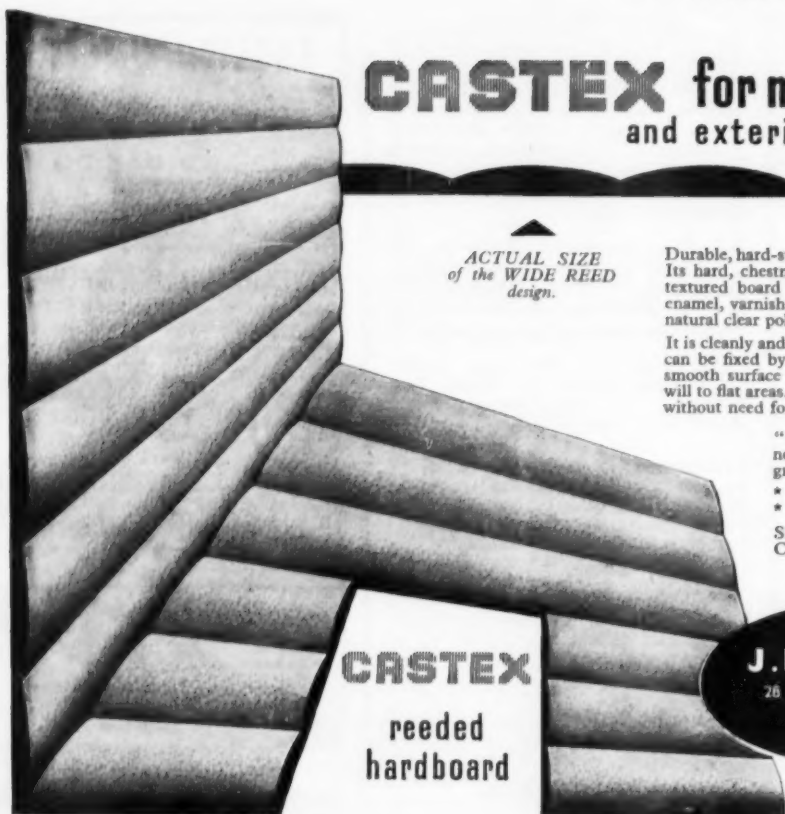
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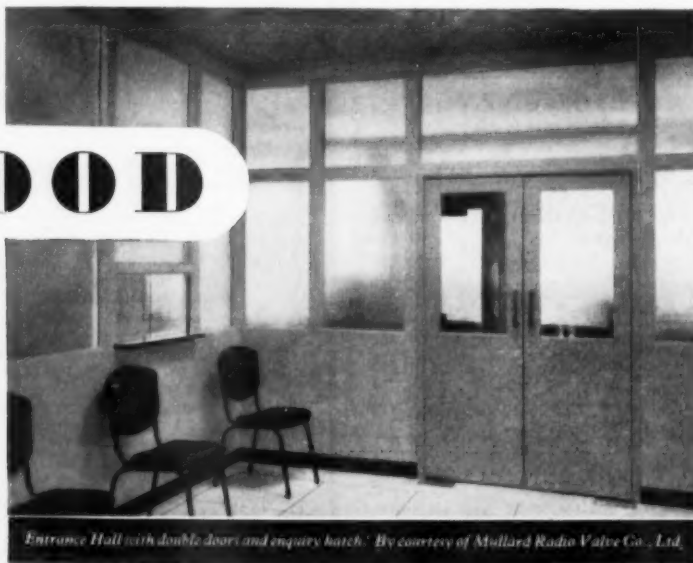
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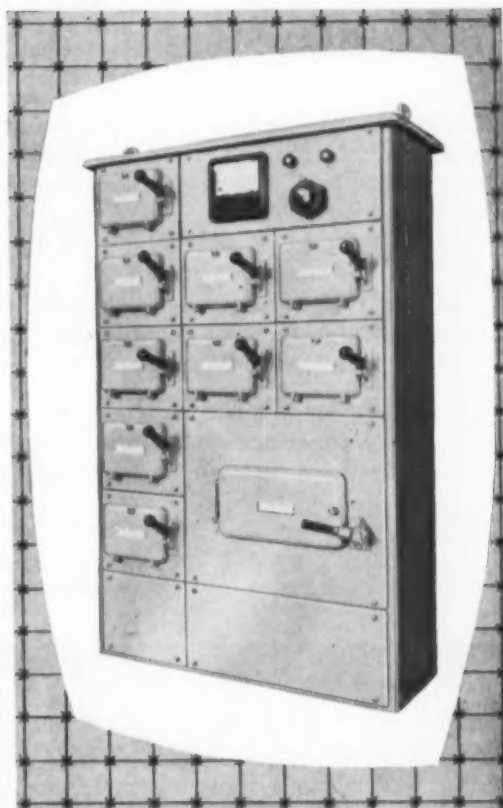
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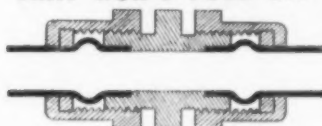
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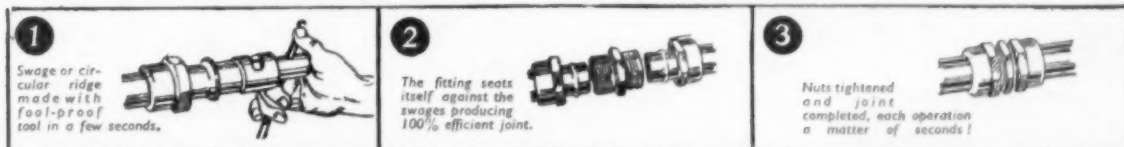
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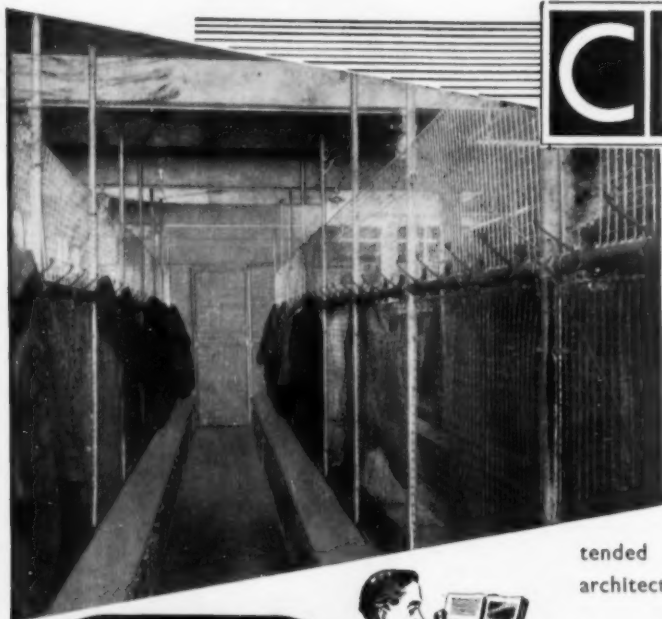
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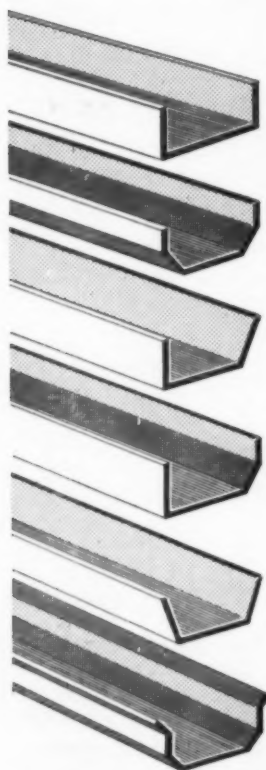


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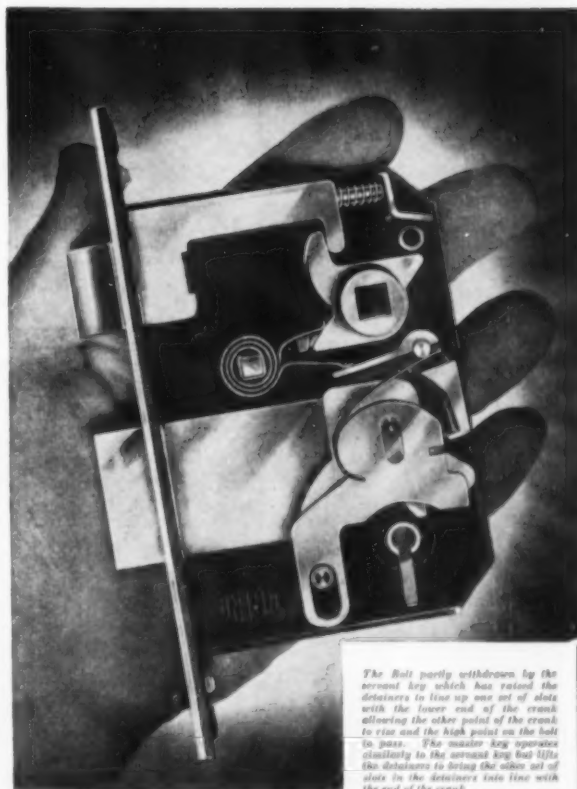
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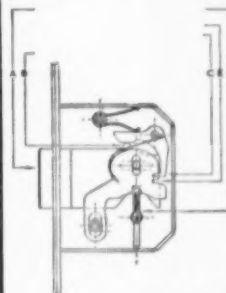
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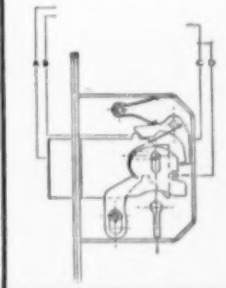
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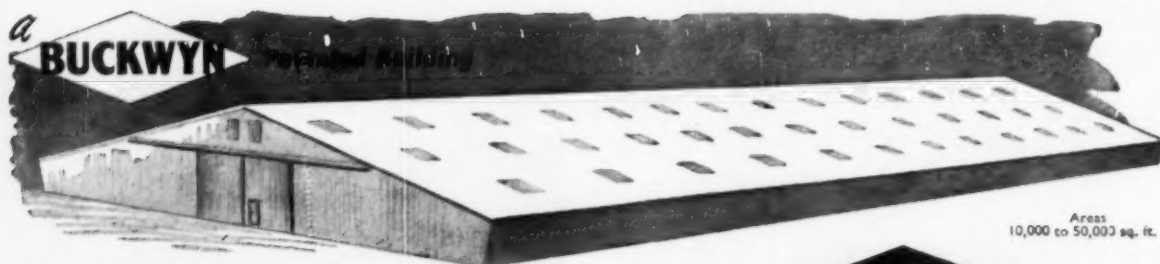


This Bolt is locked because the high point on it cannot pass under the end of the crank. That end cannot rise because the other end is blocked by detainers.



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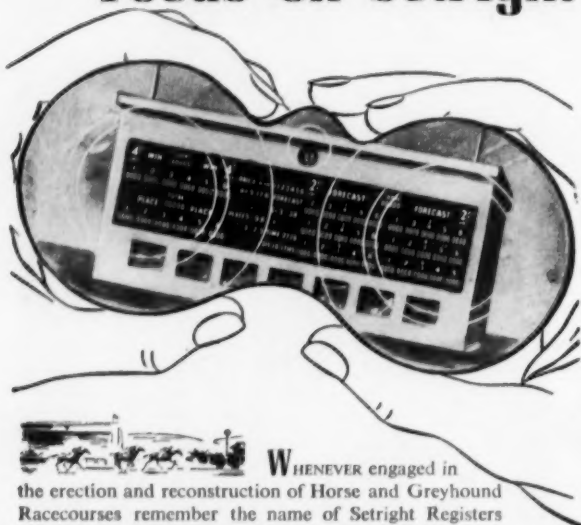


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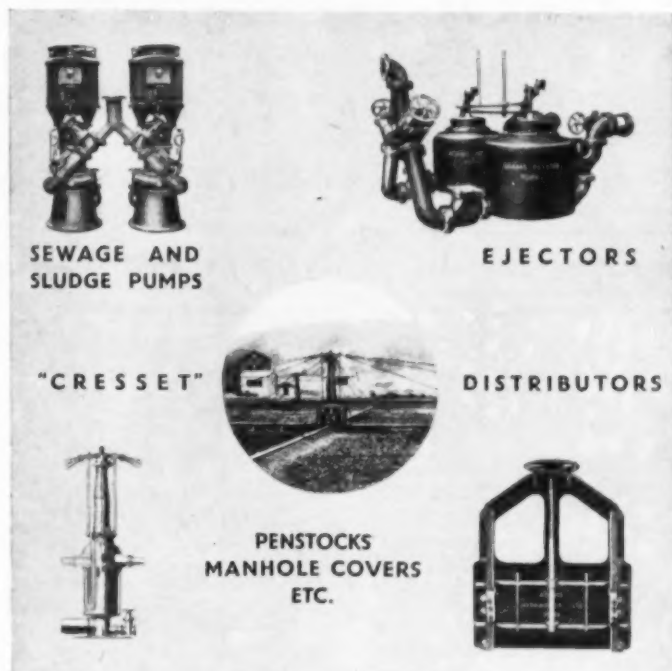
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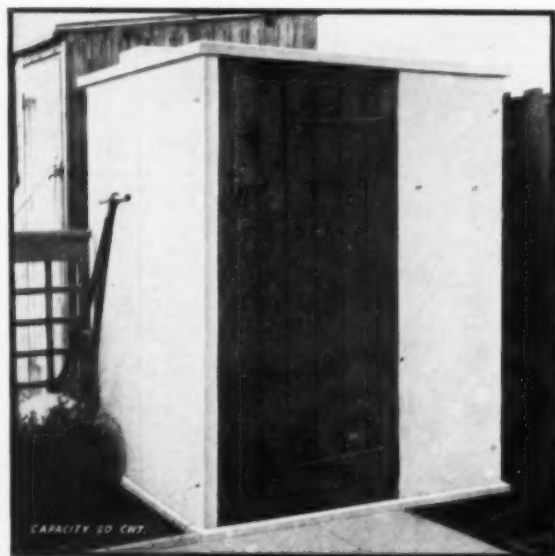
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### APPOINTMENTS

The engagement of persons answering these advertisements must be made through the local office of the Ministry of Labour and National Service, etc.. If the applicant is a man aged 18-64 or a woman aged 18-59 inclusive, unless he or she or the employer is exempted from the provisions of The Notification of Vacancies Order, 1952.

#### LONDON ELECTRICITY BOARD.

##### ARCHITECTURAL DRAUGHTSMEN.

APPLICATIONS are invited for the above positions in the Architect's Section of the Chief Engineer's Department in Central London.

Applicants should be neat draughtsmen and preferably have had several years' experience in an Architect's office.

The post is graded under Schedule "D" of the National Joint Board agreement as Grade 6—£458 to £595 7s per annum, inclusive of London Allowance.

Application forms obtainable from Personnel Officer, 46, New Broad St., E.C.2, to be returned within fourteen days of the publication date of this advertisement. Please enclose addressed envelope and quote ref. V/1785/AA on envelope and all correspondence. [8547]

#### MINISTRY OF WORKS.

ARCHITECTURAL ASSISTANTS required for drawing offices in London, Edinburgh and various provincial offices, including Aldermaston, Berks; Harwell, Berks; Nancekuke, Cornwall; Ranshill, Notts; and Bishopston, Renfrew.

Candidates must have had at least three years' architectural training, some experience in an architect's office, and be of Intermediate R.I.B.A. standard.

London salary £442—£695 per annum. Rates elsewhere slightly less. Starting pay according to age and experience. Prospects of promotion and establishment.

State age, full details of training and experience and office desired, to E. Bedford, Esq., C.V.O., A.R.I.B.A., Chief Architect, Ministry of Works, W.G.10/C.A.10(G), Abell House, John Islip Street, London, S.W.1. [8537]

#### LONDON COUNTY COUNCIL.

##### ARCHITECT'S DEPARTMENT.

VACANCIES for ARCHITECTS, Grade III (up to £892 10s), and ARCHITECTURAL ASSISTANTS (up to £739 10s) in Schools and Housing Divisions.

Particulars and application forms from Architect (AR/EK/A/3), County Hall, S.E.1. (1058.) [0146]

#### CITY OF BIRMINGHAM.

##### CITY ARCHITECT'S DEPARTMENT.

APPLICATIONS are invited for the appointment of Assistant Architect on Grade A.P.T. VIII (£785/£860 per annum) in the General Architecture Section which is responsible for a large and varied programme, including the design and erection of large public buildings, such as police and fire stations, office blocks, baths and other civic buildings.

Applicants must be Associate Members of the R.I.B.A., or hold an equivalent qualification, and must have a contemporary outlook in Architectural Design.

The post is permanent, superannuable, subject to a medical examination and to one month's notice on either side.

Applications, endorsed with the heading of the post, stating age, present position and salary, qualifications and experience, together with the names of two persons to whom reference can be made, should reach the undersigned not later than December 14th, 1954.

A. G. SHEPPARD FIDLER,

Civic Centre, Birmingham, 1. [8586]

### APPOINTMENTS—contd.

#### THURROCK URBAN DISTRICT COUNCIL.

##### ARCHITECTURAL ASSISTANT.

APPLICATIONS are invited for the appointment of an Architectural Assistant at a salary in accordance with Grade II of the A.P.T. Division of the National Scale of Salaries (applicable from 1st January, 1955), i.e., £560 rising to £640 per annum.

General architectural experience is necessary and applicants must be capable of preparing detailed plans and specifications and supervising housing schemes. Candidates should have passed the Intermediate Examination of the Royal Institute of British Architects.

Housing accommodation, if necessary, may be provided for the successful applicant if he lives more than 20 miles from the Thurrock Urban District.

The appointment is subject to the provisions of the Local Government Superannuation Act, 1937, and the successful applicant will be required to pass a medical examination.

Applications endorsed "Architectural Assistant II" stating age, qualifications and experience with copies of three recent testimonials should reach the undersigned not later than Monday the 6th December, 1954.

Canvassing will disqualify and applicants must disclose in writing any relationship to any member or senior officer of the Council.

A. E. POOLE,  
Clerk of the Council.

Council Offices,  
Whitehall Lane,  
Grays, Essex.

[8555]

#### THE UNIVERSITY OF LIVERPOOL.

APPLICATIONS are invited for the post of LECTURER and STUDIO INSTRUCTOR in the School of Architecture. The initial salary will be within the range £550-£950, according to qualifications and experience.

Candidates will be expected to have had several years of experience in practice, and preference will be given to those with special knowledge of building, science and construction, or with interest in pursuing architectural research in historical, social or structural fields.

Applications, stating age, qualifications and experience, together with the names of three referees, should be received not later than December 31, 1954, by the undersigned, from whom further particulars may be obtained.

STANLEY DUMBELL,

Registrar.

[8576]

#### COUNTY OF LEICESTER

##### ASSISTANT ARCHITECT (£625—£675)

APPLICANTS must be Registered Architects experienced in the preparation of working drawings from sketches and capable of taking charge of small contracts. Apply by December 17th on form obtainable from County Architect 123, London Road, Leicester. [8577]

#### LONDON COUNTY COUNCIL.

##### ARCHITECT'S DEPARTMENT.

VACANCIES for MAINTENANCE ASSISTANTS in the Maintenance Division of Architect's Department. Applicants should be capable of carrying out inspections and surveys of all types of buildings for maintenance repairs, redecorations and minor alterations, and have experience in preparation of estimates based on Schedule of Prices, specifications for and supervision of work carried out by either schedule contracts or direct labour. Salary from £510 to £701 5s according to experience, with opportunities of promotion to higher grades for suitably qualified assistants.

Application form returnable by December 11 from the Architect (AR/EK/MA/4), County Hall, S.E.1. (1532) [8567]

### APPOINTMENTS—contd.

#### MINISTRY OF WORKS.

LEADING ARCHITECTURAL ASSISTANTS required for drawing offices in the Chief Architect's Division in London, Edinburgh and various provincial offices.

Candidates must have had at least three years' architectural training, good experience in an architect's office, and be of Intermediate R.I.B.A. standard. London salary £710 to £834 per annum. Rates elsewhere slightly less. Starting pay according to experience. Prospects of promotion and establishment.

State age, full details of training and experience and office desired, to E. Bedford, Esq., C.V.O., A.R.I.B.A., Chief Architect, Ministry of Works, W.G.10/C.A.10(G), Abell House, John Islip Street, London, S.W.1. [8525]

#### COUNTY BOROUGH OF EAST HAM

##### SENIOR ARCHITECTURAL ASSISTANT, Grade VI—£695-£760

LONDON Weighing is paid in addition. Salary in excess of the minimum may be paid according to qualifications and experience.

A subsistence allowance may be granted over a reasonable period to the person appointed if unable to obtain suitable housing accommodation, necessitating the maintenance of two homes.

Further details and application forms returnable by December 10, 1954, from the Town Clerk, Town Hall, East Ham, E.6. [8580]

### CONTRACTS

#### WALTHAM HOLY CROSS URBAN DISTRICT COUNCIL.

##### KING GEORGE'S FIELD, LODGE LANE, WALTHAM ABBEY.

TENDERS are invited for the erection of entrance gates, including brick piers and wing walls, for King George's Field.

Drawings and Specification will be provided upon application to the Engineer and Surveyor.

Tenders, endorsed "Entrance Gates, King George's Field," to be sent in sealed envelopes bearing no identification as to the sender, to reach the undersigned not later than noon on Thursday, December 23, 1954.

The Council do not bind themselves to accept the lowest or any tender.

H. J. CHAPMAN,

Clerk of the Council.

Town Hall  
WALTHAM ABBEY,  
Essex.

[8563]

#### FAILSWORTH URBAN DISTRICT COUNCIL.

##### ERECTION OF 12 DWELLINGS, BARDSLEY FOLD, FAILSWORTH.

THE Council invite tenders for the erection of 12 dwellings on the above estate, comprising of:—

Two pairs of two-bedroomed houses.

Two four-blocks each having two two-bedroomed houses and two three bedroomed houses.

Forms of tender, Bills of Quantities and Specifications may be obtained from the Engineer and Surveyor, Town Hall, Failsworth, Manchester, upon a deposit of two guineas which will be refunded on receipt of a bona fide tender.

Drawings and Conditions of Contract may be inspected at the above office during office hours.

Tenders must be enclosed in a plain sealed envelope endorsed "12 Dwellings Bardsley Fold" and delivered to the undersigned not later than Wednesday, December 22nd, 1954.

The Council does not bind itself to accept the lowest or any tender.

JOHN WALTON,

CLERK OF THE COUNCIL.

Town Hall,  
FAILSWORTH,  
Nr. Manchester.

November 24th, 1954.

[8573]



**CONTRACTS—contd.****URBAN DISTRICT COUNCIL OF NORTHFLEET.****TENDER FOR HOUSES.**

**TENDERS** are invited for the erection of 6 flats (traditional brick construction) on the Coldharbour Road Estate, Northfleet.

The Conditions of Contract will be those of the R.I.B.A. which can be seen at the Council Offices, Northfleet, at any time during normal office hours.

Bills of Quantities and Form of Tender can be obtained from the Engineer and Surveyor at the address below on and after November 30th on payment of a deposit of two guineas, which will be returned on receipt of a bona fide tender which is not subsequently withdrawn.

Tenders in plain sealed envelopes, endorsed "Tender for Flats" and bearing no name or mark indicating the sender, must reach the undersigned not later than 12 noon on Tuesday, December 21st, 1954. The priced Bill of Quantities should be enclosed in a separate sealed envelope.

The Council do not bind themselves to accept the lowest or any tender.

W. G. FUTCHER,  
Clerk of the Council.

Council Offices,  
Northfleet,  
Kent.  
November, 1954.

[8571]

**FAIRFORTH URBAN DISTRICT COUNCIL.****ERECTION OF 12 DWELLINGS,  
WRIGLEY HEAD  
AND ANCILLARY ROAD WORKS.**

**THE** Council invite tenders for the erection of

4 Pairs of one-bedroomed Bungalows.  
2 Pairs of two-bedroomed Houses.  
Roadworks consisting of footway kerb. Carriage-way (approx. 200 sq. yards) and drainage.

Forms of tender, Bills of Quantities and Specifications may be obtained from the Engineer and Surveyor, Town Hall, Fairfworth, Manchester, upon a deposit of two guineas which will be refunded on receipt of a bona fide tender.

Drawings and Conditions of Contract may be inspected at the above office during office hours.

Tenders must be enclosed in a plain sealed envelope endorsed "12 Dwellings Wrigley Head" and delivered to the undersigned not later than Wednesday, December 22nd, 1954.

The Council does not bind itself to accept the lowest or any tender.

JOHN WALTON,  
CLERK OF THE COUNCIL.  
Town Hall,  
FAIRFORTH,  
Manchester.  
November 24th, 1954.

[8574]

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**ARCHITECTURAL APPOINT-  
MENTS VACANT—contd.**

**ASSISTANT** (Inter. Standard) required for varied practice in Midland County Town, excellent opportunity for experience and responsibility; bonus scheme.—Box 0382. [8570]

**NORMAN & DAWBARN** require architectural assistants with three to five years' continuous office experience at salaries by arrangement.—Applications, stating age and details of career, should be made in writing, to 5, Gower Street, London, W.C.1. [8566]

**VINE & VINE**, Tudor Chambers, Station Road, Wood Green, Tel. BOW. 5228, require architectural assistant, experienced preparation working drawings; intermediate standard.

Excellent prospects. Good salary for the right man. Write or phone for appointment. [8579]

**ARCHITECTURAL** Assistant required for small general office at Pottery Bar, Middlesex, for estate development, private housing and industrial work; salary offered about £500 p.a.—Details of age and experience to Booth & Booth, Leighton House, Pottery Bar, Middlesex. [8569]

**REQUIRED** for London and the Home Counties.—Representative having first-class connection with architects and contractors.—Apply by writing in the first instance stating experience, salary, age, etc., to Messrs. Smith's Fireproof Floors, Ltd., Imber Court, East Molesey, Surrey. [8572]

**REQUIRED** at once, Architectural Assistant, R.I.B.A. Intermediate standard or above. Office experience essential. Good draughtsman working drawings and details. Private practice. West Lancashire area. Salary according to age and experience.—Write, with details, Box 0347. [8565]

**ARCHITECT** for Australia, principal of large Melbourne firm of architects, now in London, wishes to interview qualified architects interested in practising in Australia; salary upwards of £A.1,500 p.a.; fare refunded after twelve months; state age, qualifications, experience and marital condition to Box 130, c/o Dawson's, 129, Cannon St., E.C.4. [8582]

**SITUATIONS VACANT**

**SENIOR** Assistant required in busy practice in West End. Age about 30 years, qualified, with several years' experience and capable of running contracts.

**JUNIOR** Assistant also required. In early twenties. Intermediate R.I.B.A. with at least two years' experience.—Box 0124. [8584]

**ASSISTANT** with some office experience required by architects in West End, London. Good prospects. Five-day week. Write brief particulars, and salary required to Box 0418, c/o A. & B.N. [8578]

**BUILDERS'** Surveying Assistant, Berks. with sound knowledge of site measurement, preparation of accounts, estimating and supervision.—Reply, giving full particulars of experience, age and salary required to Hughes, Albion Works, Wokingham, Berks. [8587]

**BIRMINGHAM** Co-operative Society, Ltd., require a Clerk of Works for their extensions to the Central Premises; experience in deep foundations and reinforced concrete and structural steelwork; contract starting in January, 1955; probable duration 2 years.—Applications to Personnel Officer, Birmingham Co-operative Society, Ltd., High St., Birmingham, 4. [8585]

**CLERK** of Works required in early February, 1955, for supervision of Contract for the University College of Swansea. Salary £700 per annum. Approximate duration of contract 18 months.—Applications, in writing, enclosing copies of three recent testimonials, together with full particulars of trade, experience, etc., should be sent to the Architects, Sir Percy Thomas & Son, 10, Cathedral Road, Cardiff. [8568]

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**ARCHITECTS'** Indemnity Insurance effected. Please write for Proposal Form to E. J. SAXBY, Incorporated Insurance Broker, 37a, Carfax, Horsham, Sussex. Tel. 990. [8549]

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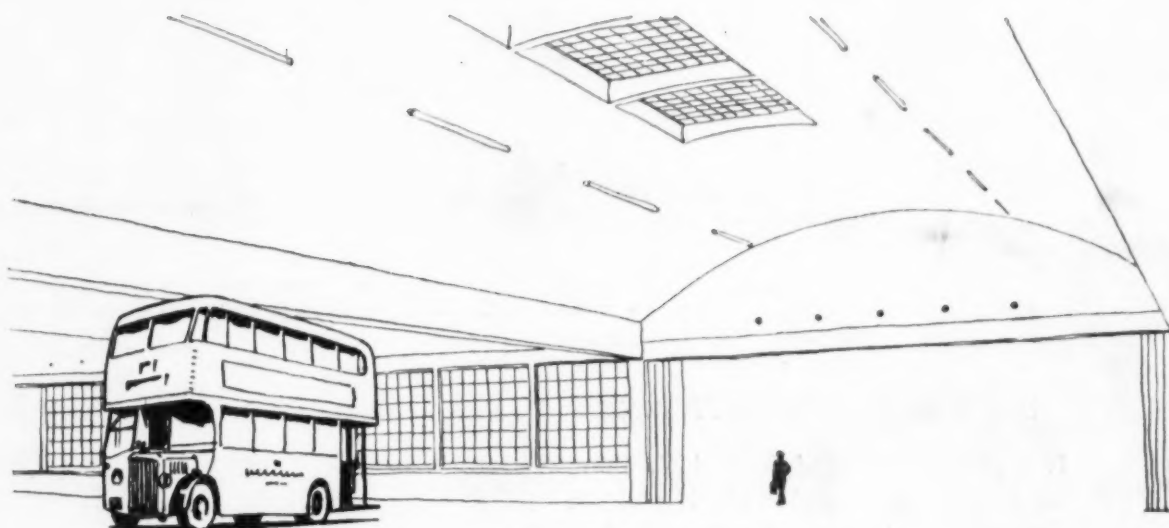
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